

# PACIFIC PULP *and* PAPER INDUSTRY

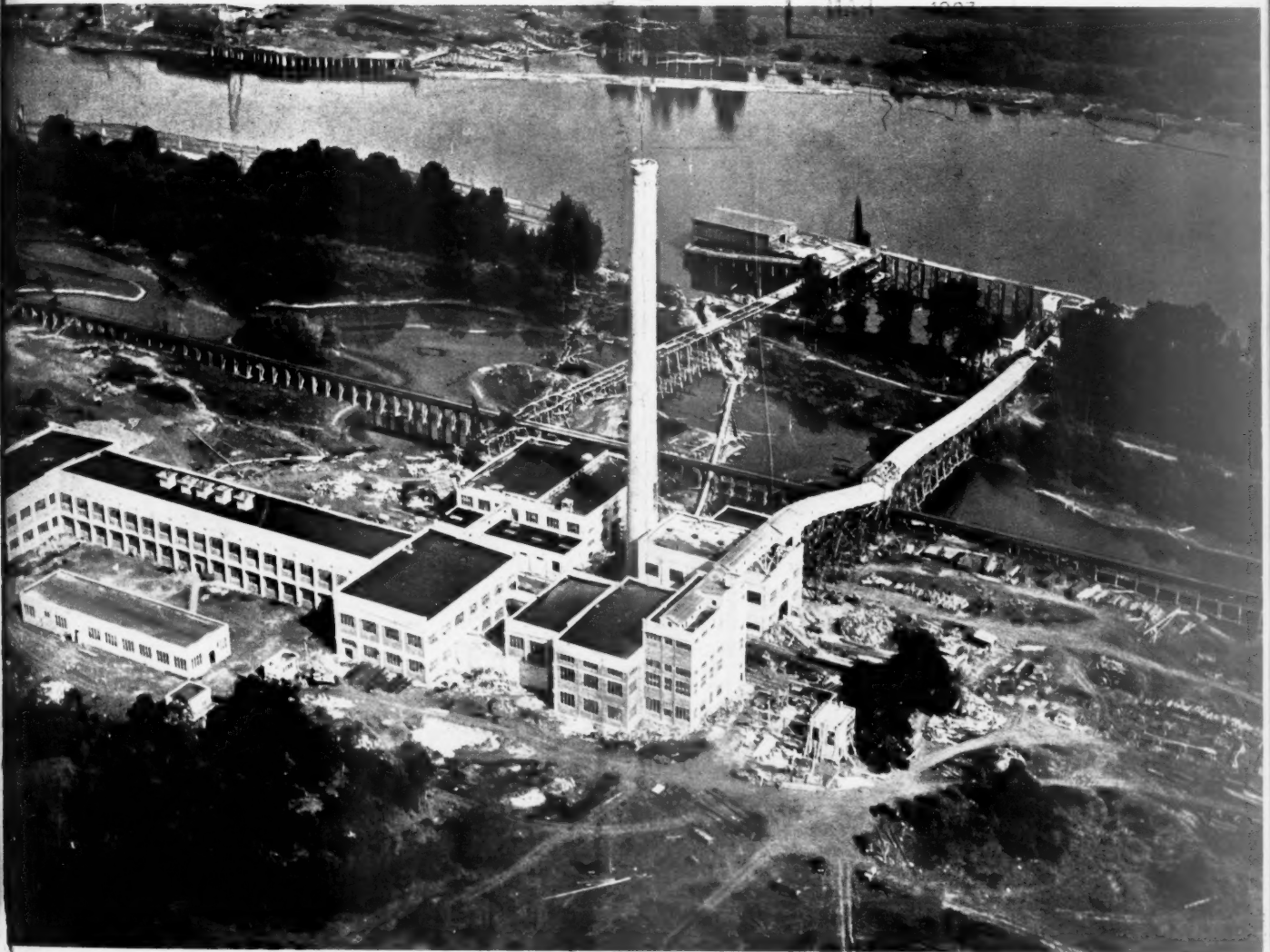
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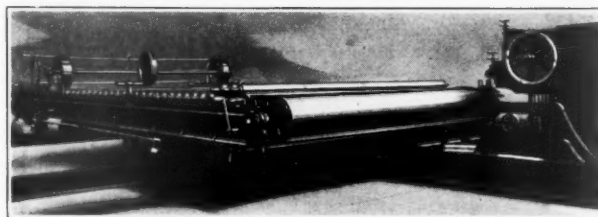
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# Pacific Pulp and Paper Industry

Devoted to the Paper Manufacturing Industries of the Western States, Alaska and British Columbia

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Vol. I.

FEBRUARY, 1927

Number 1

## Attitude of U. S. Forest Service Toward the Pulp and Paper Industry on the Pacific Coast

By W. E. WEIGLE,  
Superintendent Snoqualmie Forest

THE U. S. Forest Service is much interested in the rapid strides being made by the paper industry on the Pacific Coast and it is hoped and believed that the future holds out great inducement for the paper industry. The launching of this journal, "Pacific Pulp and Paper Industry", opens up a new field of effort in promoting this great industry on the Pacific Coast. I am sure that this journal will meet with success and in so doing will help lay the foundation for an immense pulp and paper industry on the Pacific Coast.

For fully fifteen years I have been studying conditions and telling the public of the wonderful opportunities offered by the Pacific Coast for the establishing and maintenance of an immense pulp and paper industry. The Pacific Coast contains the last big stand of timber within the United States. The timber comprises one of the finest timber belts in the world extending from far up in Alaska southerly into California. The amount of standing timber in this belt in the Coast States, including Alaska, is approximately 1,000 billion board feet and this same belt in British Columbia contains approximately 350 billion feet more. This timber is distributed approximately as follows:

Alaska .....	100 billion feet
British Columbia .....	350 billion feet
Washington .....	282 billion feet
Oregon .....	395 billion feet
California .....	280 billion feet

Also nearby this, we have more than 100 billion feet in Idaho and Montana.

Throughout this timber belt, there are immense quantities of wood suitable for the manufacture of all

kinds of paper, sufficient to supply the world for a long time to come. While there is a large quantity of spruce in mixture in various parts of this belt from Alaska to Southern Oregon, there is not sufficient spruce to guarantee a continuous supply of this species for any great length of time. The two species of wood that would have to be depended upon largely are Western hemlock and silver fir, commonly known in the Western country as balsam or amabilis fir. In many places in the state of Washington, British Columbia and Alaska, hemlock and silver fir make up as much as 80 per cent of the stand. Neither of these woods up to the present time has been especially appreciated by the lumber users throughout the United States. On account of this, their value on the ground has been far below that of Douglas fir or cedar. Because of this condition and their value as paper woods, the indications are that their future use will be chiefly in the production of pulp and paper.

On account of the enormous quantities of these woods that are suitable for paper making being situated in the National Forests of Alaska, Oregon and Washington, the Federal Forest Service has been making a continued effort to bring before the paper industry and capital in general throughout the country, the actual condition that exists on the Pacific Coast with respect to the quantity of raw material available for pulp and paper making and its proximity to suitable water powers and other conditions that enter into the promotion of the industry in general. Because of the fact that the establishment of a pulp and paper plant requires a very large sum of money, it is believed that one of the things to interest a concern of this kind would be the long period of operation. Therefore, the

Forest Service has shown its interest and attitude toward the establishment of a paper industry on the coast by setting aside and holding from sale for general lumber purposes units within the several National Forests that contain large quantities of timber suitable for the manufacture of pulp and paper. Also in order to aid in the financing of large projects of this kind and protect the investment by long periods of operation,

the Forest Service has been offering long term contracts for units sufficiently large to permit of cutting the timber on the sustained yield plan which means that there would not be more timber cut during a certain period than would grow on that area during that period thus making the life of a plant permanent. Water power permits are granted for as much as 50 years with privilege of renewal.

## Reasons Why Pacific Northwest Should Be Great Pulp and Paper Center

By W. E. WEIGLE,  
Superintendent Snoqualmie Forest

**P**UGET SOUND, one of the best and most beautiful harbors in the world, is in the midst of the last great virgin forests of the United States.

This belt of virgin timber, which is without question the finest in the world, extends from Alaska to California and still contains more than 1,000 billion board feet of standing timber within the United States including Alaska and an additional 350 billion feet in British Columbia.

Western Washington is in the midst of this fine belt of timber and on the shores of Puget Sound, or nearby, within a radius of 150 miles of Seattle, there is still standing approximately 300 billion feet of the finest Douglas fir, cedar, spruce, hemlock and silver fir timber in the world. This timber will often average 50,000 board feet per acre and large tracts carry 100,000 feet or more per acre.

This 300 billion feet in the state of Washington is made up approximately as follows:

Douglas fir .....	135 billion
Western red cedar .....	50 billion
Hemlock .....	65 billion
Silver fir .....	35 billion
Spruce .....	10 billion
Other species .....	5 billion

The Puget Sound region of Western Washington is admirably adapted to the manufacture of pulp and paper. It unquestionably has more conditions favorable to the perpetuation of the paper industry than any other region in the United States.

1. It has the largest supply of timber suitable for paper making in the United States and it is cheaper and guarantees a more continuous supply than anywhere else.
2. Enormous quantities of available, cheaply installed waterpower adjacent to the timber.
3. Fine mill sites adjacent to the timber on one of the finest harbors in the world.
4. Plenty of lime of the purity needed in paper manufacture.
5. A salubrious climate throughout the year which makes labor plentiful, efficient and stable.
6. Timber supply produced throughout the year and the period of time from the stump to the mill is a matter of only a few days.

7. Seattle, a city of over 400,000 inhabitants, and growing rapidly, is only a few miles from all activities pertaining to the manufacture of paper, which is conducive to reducing the usual turnover of labor.

8. Transportation from the mill to the doors of the world facilitated by being located in a harbor visited by the ships of the world.

9. Freight rates from mills located on Puget Sound to New York no greater than freight charges on paper shipped from interior and Canadian mills to New York by rail.

10. The enormous quantities of material suitable for pulp now going to waste on the logging areas and at the mills tributary to the manufacture of six billion feet of lumber in Western Washington annually is sufficient to produce 500,000 tons of pulp. This condition will maintain for the next 30 to 50 years, and even though a paper concern would prefer to get its material from the tree or logs in boom, this enormous amount of available waste will always have the tendency to cheapen the other material.

11. Western Washington has an area of 16 million acres of which ten million acres are more suitable for growing timber than anything else. At present, there is within this area approximately 300 billion feet of standing mature timber and immense areas of young or immature timber.

The State of Washington, the Federal Government and many of the larger private owners of timber are much alive to the fact that growing timber in Western Washington will pay. No other place in the world has a more suitable climate for reforestation and growth of timber. Timber grows faster and produces more per acre than any other paper wood producing region, therefore, it is reasonable to believe that most of the cut-over land not suitable for agriculture will be reforested. This condition, together with the proximity of 75 billion feet of mature timber located on the National Forests, which will be cut on the sustained yield plan; that is, not cutting more in a period of years than grows during that period, will provide a supply of pulp wood sufficient to guarantee many large plants a continuous life.

# New Kraft Mill at St. Helens Now Producing

**S**TARTING off "without a hitch" shortly before Christmas, after about a month's steady operation, the St. Helens Pulp & Paper Company's new kraft mill at St. Helens, Ore. has made good on its trial run.

Due to some of the most expert engineering effort that has characterized modern paper mill construction, the success of the St. Helens trial run was certain. It is a monument to the employment of engineering of the first class and shows beyond the shadow of a doubt that engineering skill is most economical when of the very best to be had.

As one proceeds through this ultra-modern plant, one feature seems predominant. That outstanding feature as it impressed the representative of this journal as he journeyed through the various departments, was the fact that here no "erasures" had to be made—that from the tracings to the act of turning the steam into the turbines, there was no necessity for corrections or changes. To have effected such a condition of certainty could not have been the work of one man; it proves indubitably the perfect coordination of every engineer "on the job", from start to finish.

The St. Helens Pulp & Paper Company has not spared anything to make of its plant a most modernly equipped manufactory in order that the product might be of the best quality. As the local plant engineer, Mr. R. Reid, escorted the writer through each step of the plant, efficient planning was everywhere evident. An excellent forebay, is first seen, where the logs may be held in booms, awaiting their being conveyed to the yard; however, much of the pulp timber is slab waste from the saw mill of the owning company, about one mile west of the paper mill. This slab waste, together with all the hogged fuel that is used to generate steam for the power and heating plant is lightered to the paper mill dock, where conveyors take it up to the wood room and the boiler house, respectively.

The power house is equipped with four 500 h. p. boilers delivering steam to two large turbines, generating approximately 1,000 h. p. The hogged fuel has proved to be capable of making the necessary amount of steam, but auxiliary oil burners are installed in order that there may be no shut downs. A huge smoke stack, over 300 feet in height, gives the highest percentage of draft to the boilers.

The chipper room shows the same excellent planning; from thence to the digesters is a simple but efficient conveyor system and where three huge digesters of German make receive the wood. From these digesters are pipes conveying the waste liquors direct to the recovery room. Here, in the recovery room, is the crowning achievement of the St. Helens plant. All waste liquors are passed through mammoth leaching tanks and the sludge separated from the usable chemicals; in this highly developed process, fully 50 per cent of the waste liquors are recovered. Here also, the white water waste is recovered and diverted to the beaters. While this equipment is costly, the economies made possible stamp it as a highly essential adjunct of the modern mill. The equipment of the recovery

room consists of rotary kilns, leaching and separator tanks, most of which has been designed specially for the St. Helens plant and made by Portland, Ore. concerns.

Ten Horn beaters are unit driven by electricity, as are the Jordans. The beaters are equipped with silver screens of a well known make. The Fourdrinier is a New Beloit paper machine, made by the Beloit Iron Works, Beloit, Wisc. This is the latest design of Beloit Fourdrinier, comprising all of the modern improvements in a paper machine.

The principal wood used is hemlock, and the product Kraft paper. This Beloit machine is making a high grade product out of this wood, at the rate of about 60 tons per day. It has a width of 168 inches and operates at about 700 feet per minute. The New Beloit is equipped with a quick changing wire section, greatly facilitating the removal of the wire—requiring but an hour to make the change. Has also suction couch and press and as the latest improvement, is equipped with a special tension gauge about mid-way on the rolls. This tension appliance can be set to accommodate any run of paper, preventing much of the trouble usually occurring through changes of texture of stock.

The machine is driven by two steam turbines of nearly 300 h. p. each. Steam vapors are carried off by an efficient evaporator system.

The St. Helens Pulp & Paper Company is manned by skilled paper mill men. Mr. Max Oberdorfer is manager, with Mr. Irwin Rau, assistant manager. Its officers are: W. P. Hawley, Sr., president; W. P. Hawley, Jr., vice-president, and Mr. H. F. McCormick of St. Helens is chairman of the Board of Directors.

The construction of the mill was done by the Guthrie Company of Portland, Ore., and is of steel-concrete; architecturally, it is an ideal mill building and foresighted provision has been made for additional space by making some of the inside walls of hollow tile so that they may be easily broken out to take care of the expansion of this enterprise which it is inevitable will be most rapid.

The cost of the plant is said to be in excess of \$2,500,000.

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# Scientific Economy Vital in Pulp Production

Higgins Stresses Reforestation and Warns Against Overproduction

By M. R. HIGGINS

Washington Pulp and Paper Corp.

**L**IMITATIONS of space and ability suggest a short discussion of the present and future development of wood, pulp and paper development in the Northwest. The past development has not always been on prudent or conservative lines which the future must be if the great natural resources of the state are to continue to be a source of wealth and employment.

Developments should include a due regard of the future of our vast forests. Over-production is not development; it is willful waste.

The former easy and cheap acquisition of vast limits of forest timber lured experienced operators into extravagant production and has been the paradise of the promoter. Lavish methods of operation, over-production, willful waste, "the present is ours, never mind the future," have wrought havoc with our great forests, the pride and wonder of the West.

In some lines of this production it is evident to all experienced operators that the saturation point has been reached and yet the siren song of the promoter is sweet music to the non-investigating investor. The day of rapid rise in the value of growing timber, which has been the savior of numberless enterprises is gone. Those who now own timber know its value. There are no bargains.

## Economic Harvesting

In the future, money will be made out of the forest

by limiting the supply of the finished product to the demand and by the practice of strict economy in production and conversion. The ruthless waste that characterized operations founded on cheap wood has given way to scientific economic harvesting.

Depreciation, with its omnivorous appetite, is taking deadly toll of antiquated methods and plants. Exhaustion is removing bodily the greatest source of wealth and employment that the state has. Reforestation with its enormous cost and generations of patient waiting is an absolute necessity to the future of the wood industry.

The vital questions are: Is the vast expenditure of capital earning adequate return? How long will the present forests last? What is being done to conserve the basic source of investment and employment? Is there a profitable market for the gigantic volume of forest products now produced and in process of being brought into production?

Timber properly bought, forest operations economically carried on, conversion scientifically handled, ample capitalization, scrapping of antiquated plants, production limited to market demand, rational competition instead of destructive competition, reforestation on a scale commensurate with consumption and reasonable taxes must be the elements of any permanent and remunerative investment of wood, pulp or paper.

## Alaska Coming into its Own

The Territory of Alaska has one of the most potential pulp and paper resources on the face of the earth, with particular reference to the production of newsprint and other grades of paper and paper products that can be made by the ground wood method.

The hundred billion of feet (board measure) that it is estimated is available in the two National Forests in Alaska, computed into cords, makes the imposing total of approximately 15,000,000 cords. This, it is adduced, fully reforests itself in 60 years. Such an inviting stand of timber cannot long remain untouched and at this time the eyes of publishers over the entire country are turned Alaska-ward.

There are several large operators seeking suitable locations for pulp and paper manufacturing. Notable among them are the Zellerbach Paper Company, the Hearst Syndicate and some independent San Francisco operators. The Whitworth Syndicate, a group of British capitalists, centering at Manchester, England, also has representatives looking over the field with the object in view of getting control of the newsprint situation. Aside from these large operators, are several promoters and engineers who, early seeing the great possibilities of the region, made filings on power sites in several of the choice districts. Enough engineering data has been gathered both by the government and

independent engineers, with which to base estimates upon sufficient to warrant the commencing of actual development.

Power possibilities are enormous in the Territory, situated as they are, close to tidewater in most instances. The Forest Service has evolved a plan whereby an area of pulp timber is allocated to each power site or group of sites, sufficient to maintain in perpetuity a paper manufacturing plant of a capacity for which there is adequate power. This is a distinct advantage for the operator, as it entails no investment other than for development.

The engineering developments of the last two or three years have served to open the eyes of the paper manufacturers of the United States as to the position Alaska will occupy with regards to the country's future newsprint paper supply. A great forest area, thickly covered, if harvested carefully, will serve the publishing interests with newsprint paper stock practically in perpetuity, it being possible to produce 4,000,000 to 5,000,000 tons of ground wood stock annually without seriously impairing the new growth.

In future issues, the Pacific Pulp and Paper Industry will contain authoritative information about Alaska's economic importance in the paper manufacturing business.



# Attitude of British Columbia on Timber Supply for Big Paper Operators

British Columbia Minister of Lands Points Them in Answer to Critics

**I**N an interview recently published in the *Victoria Times*, Hon. T. D. Pattullo, Minister of Lands, in answering criticism of the sale of large areas of timber on Queen Charlotte Sound, touched at the heart of the most important consideration of the pulp and paper manufacturing business; namely, the imperative need for an adequate supply of timber both present and future.

Millions of dollars in fixed investments of many kinds are essential for the successful establishment of an important pulp and paper plant. A number of years of successful operation are necessary to pay off bond issues. Replacements and improvements are many and costly; carrying charges as taxes, interest and insurance are heavy, and unless the operations of the mill far into the future are assured there would likely be but little left in the net column. Following is what the Minister said:

Before the government decided to sell the Queen Charlotte timber, the minister declared, he had been advised by the Powell River Company that if they could not secure adequate government timber on the coast, and if the government insisted on controlling the price of newsprint, then heads of the company would advise against the installation of the new unit, opened this year. After learning that the company's development was dependent upon a future timber supply, the government, Mr. Pattullo said, had decided to make the Queen Charlotte limits available for sale by open tender.

Answering criticism of the sale Mr. Pattullo issued a statement as follows:

"With regard to some criticism which has been made in respect of a proposed sale of pulp timber on Queen Charlotte Islands; it has been suggested that sufficient advertising was not done in connection with such a large stand of timber; that sufficient time was not allowed for proper examination by interested persons; that the reserve price was not in keeping with the average price for timber stumpage elsewhere in British Columbia; and that no reserve has been placed on any of the spruce for future national defence purposes.

## Thirty Years' Supply

"In order that the public may understand this question, let me point out that to encourage the development of the pulp and paper industry in this province, the Forest Act provides that there may be sold to any pulp unit a quantity of timber equal to thirty years' supply for the capacity of the unit.

"In the various timber sales that are held by the Forest branch, they are practically all put up at the instance of some individual who is especially interested.

"The Powell River Company, before proceeding with the installation of the new 200-ton unit which they recently installed at the cost of several million dollars, wanted to know what the policy of the administration would be with regard to their acquiring an additional supply of timber for their plant so that they could be assured of a sufficient quantity of timber to justify them in proceeding with the new installation.

"I pointed out to the company that of the standing timber on this coast no less than two hundred billion out of two hundred and thirty billion feet was alienated into the hands of private owners before the present administration took office, and that the government was not particularly anxious to dispose of further large blocks on the coast.

## New Unit Planned

"Just about this time I was having some conversations with the company in respect of the price charged for newsprint to the newspapers of British Columbia, and was insisting that the price charged in British Columbia should not be higher than the eastern price. The late Norman Lang, who was then

general manager of the company, and who was conducting negotiations for the company, advised me that if the company was not to have access to any government timber on the coast, and at the same time the government intended to control the price of newsprint, he would advise his company not to proceed with the installation of the new unit. I told the late Mr. Lang that the government would be glad to see his company prosper and expand, and that under the circumstances, if the company proceeded with the installation of the new 200-ton unit, and could locate a supply of government timber that was not readily accessible to small operators but that would require development on a large scale, and heavy expenditure to make the operation successful, that favorable consideration would be given to put such an area up to public competition, which would enable them to purchase the same in the open market.

"The company went ahead with the new unit, which is completed. They are selling newsprint to British Columbia papers at the eastern price, and an area of government timber on Queen Charlotte Islands is now up for sale at public competition.

## Sale Advertised

"The area was advertised for the time required by the statute, and other operators on the coast who were qualified to tender on this pulp licence, were advised by letter of the proposed sale. The area in question was carefully investigated by the department and thoroughly cruised and check-cruised, maps and reports being available in the department of lands, to be seen by anyone interested.

"Every timber sale held by the department is treated on its merits as regards upset price. This sale requires a heavy investment of capital for development, and heavy transportation charges. It is obvious, therefore, that the stumpage price must be lower than that received for more accessible tracts which have been sold by the Forest branch from time to time for immediate operation in various parts of the province. There are areas of private timber in British Columbia at the present time, and areas of timber in Alaska, just as accessible or even more so than the Queen Charlotte Island timber, that can be purchased at lower figures than the upset price placed on this area. The Tory administration preceding our administration sold better located timber than the Queen Charlotte Island timber for ten cents.

## Old Statutes Rigid

"When the present administration took office, the statutes in respect of the pulp and paper industry were so rigid and inelastic that it was evident that no further development would take place in the province other than existing concerns. One of the objections raised was that the investor must spend a lot of time and money investigating his proposal, only to find that he must go to public competition, and might thereby lose both his time and money. Under this administration the Forest Act was amended, maintaining the competitive principle, but making wider provision in other respects, for the encouragement of the industry.

"Since the enactment of this legislation a considerable number of investors have been active in investigating a number of likely looking undertakings, although there is still complaint as to the competitive feature. I believe that the competitive feature has retarded the development of the industry in the province. In the older provinces of Quebec and Ontario, with the industry so highly developed, the competitive principle is no deterrent, yet while I think that the principle has retarded development in British Columbia, I would not at this stage advocate doing away with it. The trend of events is swinging to British Columbia, and the public itself feels safer with the competitive principle.

"While it is desirable to get additional industries in the province, it is equally essential that we shall protect the industries that are here. I know something about the pulp and paper situation, and I am convinced that no company could start a new pulp and paper industry based on the area now

up for sale on the Queen Charlotte Islands, and make a success of it in the immediate future.

#### A Solid Company

"The merchants and people of British Columbia generally, have had an experience of fly-by-night companies who start up only to leave a trail of creditors in their wake. On the other hand, here is an instance of a strong and capable company who desire to expand and did expand to the extent of the addition of a 200-ton unit, and I believe it to be in the public interest that they or any similar concern, shall have reasonable opportunity to secure an adequate supply of the raw material. The public may be assured that the public interests are amply protected. The public gets the stumpage price, royalty of timber, income tax, water rentals, and the income derived directly and indirectly from thousands of people which the operations of the company support. Far, therefore, from taking the administration to task, as has been done, I believe it should be commended for its patriotic effort to build up solid industry in this province.

"With regard to the matter of spruce for airplane purposes; some time ago a committee was appointed to investigate the question of future supplies of this material; but to date neither the federal nor the imperial government has taken any steps to acquire and reserve spruce in British Columbia for future needs. When during the World War large quantities of airplane spruce were required, the fact that much of our timber was in private hands did not prevent the securing of same for war purposes; and I do not think that the alienation of the area in question will materially affect the situation with regard to future supplies should the need for them arise. As a matter of fact the cruise shows that the run of spruce in this area is only of fair quality and indications are that the amount of clear spruce that would be suitable for airplane use is limited.

#### Airplane Spruce

"In criticising this sale it was also suggested that considerable indignation was aroused by the government permitting the allocation of another area of airplane spruce on the Queen Charlotte Islands to American interests who cut the logs and hauled them to Los Angeles to be milled there. This statement is not true, and there must be some motive behind such a statement. What actually happened was that prior to the present administration taking office, and during the time when the acquirement of timber by the process of staking was allowed, a large area of timber on Massett Inlet, Queen Charlotte Islands, passed into private hands. A Los Angeles company secured certain cutting rights from the owners of the timber, and proceeded to operate. The operations of this company were very satisfactory. The manufacture that they carried out was confined to the very minimum that was required to permit export, and their product was carried to Los Angeles to be there further refined. This is the same organization that wanted further time to investigate the sale recently effected. I have, therefore, advised this same company that if they are prepared to erect a pulp and paper plant, that the government will give favorable consideration to their securing, under the terms of the Forest Act, such additional quantity of timber as they may require to supplement their present holding.

#### Local Manufacture

"It is the desire of the government that timber shall be manufactured to the highest possible refinement within the confines of the province. The conversion of timber into the finished product of paper results in the expenditure of a much larger sum of money within the province than the ordinary timber operation. The Powell River Company, to whom the timber sale was awarded, manufactures the timber into refined article, paper; and I am advised that in the recent installation of their new 200-ton unit ninety per cent of the undertaking was of Canadian manufacture."

### A. P. Graustein, President of International, Sees All Clear Ahead

The president of the International Paper Company, Mr. A. P. Graustein, considers the present industrial situation quite sound. There is nothing in sight, according to a statement made to the Associated Press, to indicate any marked disturbances. The paper industry, he continues, is continuing its expansion in Canada on its low priced product, newsprint; and is developing production of higher cost products at points where reserves of highly skilled labor exist relatively close to the consuming centers.

### Lumber Salvaging in Paper Making

The timber situation in the west, particularly on the Pacific Coast region has reached a high degree of efficiency as regards the production of lumber. Vast logging and saw mill operations are found throughout Idaho, Washington, Oregon and California, as well as in British Columbia and Alaska, producing a large proportion of the world's lumber requirements.

These timber enterprises are on a well established basis; the equilibrium of this industry is so finely adjusted that due deference must be given it by the newer pulp and paper industry in order to conserve the continued success of the one, yet not cramp the natural growth of the other.

The ideal arrangement for the modern pulp and paper mill of the west in the future should, and quite likely will, include complete saw mill equipment as a profitable adjunct to the manufacture of paper.

Where much of the pulp timber is spruce, in the west, the species runs more to larger timber and is usually of better grade than in the east or Canada. This (Sitka) spruce runs a high percentage to clear lumber. This particular stock, considering it from the standpoint of dollars and cents is worth more as lumber than as pulp, volume for volume.

Normally, there is a good market for select spruce lumber. Tank, pattern and airplane stock and numerous other uses make of this almost grainless wood a highly prized timber product.

There is no data available as to just what proportion of the run of spruce pulp wood might be saved for high grade lumber, but from 15 to 20 per cent might be considered a safe average.

This 15 or 20 per cent of high grade lumber may be recovered at a very low cost, by some few changes in the present methods of handling the wood before it reaches the wood room. The most common method now is to either get the log to the yard, buck it into the required lengths, split it and place it in rossing drums to clean it, or buck and split the timber in the woods, haul to mill and then ross it. To salvage the high grade lumber stock, the log, preferably in 24-foot lengths, or at least in multiples of 4 feet, should be brought to the mill yard, chucked in a huge barking lathe, specially designed for that purpose, and, when cleaned of the bark, if the inspector after examination finds the log will produce good lumber, the log is conveyed to the saw mill where it is slabbed (the slabs going to the cut-off saw and from thence, direct to grinding room) and the resulting cant worked up into as much select lumber as it is possible to obtain; the residue then going the same route to the grinder room as did the slabs.

Not only is this method of salvaging select lumber from pulp wood one having a definite profit factor, but is also in line with the policy of sane conservation and high degree of utilization of our forest products.

### Kalama Mill Progresses

Progress on the new mill at Kalama, Wash., is reported to be making rapid strides. Eastern engineers are said to be behind the Kalama enterprise.

# Newsprint From The North

## A Comprehensive Survey of Southeastern Alaska As a Source of Supply

By B. F. HINTZELMAN

Assistant District Forester, U. S. Forest Service

THE Panhandle or Southeastern Alaska is the section considered in the discussion which will follow. It extends southerly from the main body of the Territory along the west side of British Columbia. While it constitutes only five per cent of the total area of the Territory, it is 300 miles long and 100 miles wide and is larger than the State of Maine and a number of other states of the Union. It consists of a narrow strip of mainland, a paralleling chain of hundreds of islands and an intricate network of narrow navigable waterways. It lies from 600 to 1,000 miles northwest of Seattle and is reached by boat through the "Inside Passage," a protected waterway lying back of the islands that extend from Puget Sound to the north end of southeastern Alaska.

The warm Japan Current which first touches America here gives this region more points of similarity with British Columbia and western Washington than it has with the main section of Alaska. The climate is quite similar and it has much the same type of forest growth. Its waterways are not ice bound in winter so that communication is possible at all times of the year. It may be a surprise to learn that the temperature rarely falls to zero and that the January mean temperature at Sitka is 5 degrees higher than the January mean at Boston. The snow at sea level elevations does not reach great depths as frequent rains carry it off, but on the nearby mountains it becomes very deep and lays from October to late spring.

The outstanding climatic feature is the heavy rainfall, the average annual precipitation varying in the different localities from 85 to 157 inches. This extreme rainfall is largely accountable for the value of the water power sites here. Also it gives the region a very low forest fire risk.

There are no climatic or physical features which would prevent or seriously hinder the operation of a pulp and paper mill and the shipping of the output throughout the year. The logging season is generally considered as covering nine months, but in many localities long logging is thoroughly practical.

The total estimated stand of commercial timber in southeastern Alaska is 78 billion board feet or 130,000,000 cords. It is made up of 70 per cent western hemlock and 20 to 25 per cent Sitka spruce and a small amount of cedar. A majority of the trees are between 18 and 36 inches in diameter and 100 and 150 feet in height. The average stand per acre is about 20,000 board feet or 33 cords, but extensive areas of twice this volume are numerous. As we have cruised and mapped 600,000 acres, we have a good basis for the timber estimates. All of this timber is within the Tongass National Forest, which is almost coextensive with southeastern Alaska, and is administered by the U. S. Forest Service. There is no privately owned timberland here.

The forests of southeastern Alaska are considered more valuable for pulp than for lumber and are man-

aged primarily for the production of pulpwood and the building up of a large, permanent pulp and paper manufacturing center in that region. It is unlikely that an extensive lumber industry in Alaska could compete successfully with the Pacific Northwest, the greatest lumber-producing region in the world. Our lumber would have to be shipped through or past this producing center under the handicap of a much longer haul. Also, our trees on the average are smaller than those of the forests farther south and will not produce as high-grade lumber. On the other hand, the timber of Alaska consists almost entirely of pulping species, ample supplies of cheap water power are available locally for the pulp industry, and paper can stand a longer freight haul than lumber as it is a more valuable and less bulky product. We do not anticipate that much competition for raw material will develop in Alaska between the paper making and the saw mill industries.

Based on a timber stand of 130,000,000 cords and on a timber crop rotation of 85 years, which is very conservative, we estimate that southeastern Alaska can produce 1,000,000 tons of newsprint annually in perpetuity. Western hemlock and Sitka spruce are both very good pulpwoods for newsprint, the kind of paper we believe should be made in Alaska. Western hemlock is much better pulping wood than eastern hemlock, while Sitka spruce compares very favorably with white spruce in this regard. All of the newsprint mills on the Pacific Coast use these two species almost exclusively. While Sitka spruce is the better pulpwood, the western hemlock is used more extensively because of the keen competition for spruce logs from the sawmills in the same regions and the fact that a satisfactory grade of newsprint can be made from pulp in which there is a high percentage of hemlock. The sulphite pulp is made entirely of hemlock. The ground wood is mixed hemlock and spruce, the latter forming from 30 to 50 per cent of the mixture. In this connection it should be stated that southeastern Alaska has a greater stand of Sitka spruce than British Columbia, Washington or Oregon, and that it is much more accessible to tidewater.

These pulpwood forests of Alaska fringe the shores of the mainland and islands, rarely extending inland more than four or five miles. In fact, the great bulk of the timber lies within  $2\frac{1}{2}$  miles of navigable water. This condition makes all of our pulpwood units accessible and permits of unusually cheap logging costs. All logging is done with machinery, that is donkey engines and wire cable, and on the average pulp timber sale area there are many logging units from which the wood supply for a plant could be obtained for many years by pulling the logs directly into tidewater with these machines working either singly or tandem.

The logs are handled in full tree lengths from the stump to the mill. They are towed in flat rafts from the logging camps and as the expense of towing is only  $\frac{3}{4}$  cent per cord per mile, the cost of log transportation

\*Reproduced from the Alaska Year Book.



take the place of the driving streams and of main line logging railroads of other regions.

Based on 1925 logging costs of sawtimber in Alaska, we estimate that the total cost, including stumpage of rough wood delivered to pulpmills in this region, should not exceed \$6.00 per cord of 100 cubic feet of solid wood for at least the next ten years.

#### Water Power

A cheap and abundant supply of water power is almost as important a factor in newsprint manufacture as cheap and suitable timber. The possible production in Alaska of 1,000,000 tons of newsprint annually would require about 300,000 horsepower continuously throughout the year. The water powers we have investigated to date are more than ample to supply this amount of yearlong power and it is only reasonable to suppose that in this casually explored country additional valuable sites will be discovered in the future. In fact, the finding of a new power site is a frequent occurrence.

The power sites here are quite unusual in character. The drainage areas are small but have a tremendous runoff per square mile owing to the heavy precipitation. The low water period occurs in winter when the precipitation at the higher elevations is in the form of snow and it is necessary, therefore, to store quantities of water for winter use in order to obtain an equalized power output throughout the year. The streams are always high in summer; the clearer and warmer the weather the heavier the flow due to melting snow fields. High lakes ranging in elevation from 100 feet to as much as 1,485 feet and located from  $1\frac{1}{4}$  to  $2\frac{1}{2}$  miles from tidewater are a feature of the power streams here. These lakes offer excellent opportunities for water storage for winter use, and in fact, only those powers which have such water storage facilities are considered as suitable for the use of pulp and paper mills. Storage can be provided either by means of a dam or by tapping the bottom of the lake with a tunnel. The latter is a very economical method of providing storage. All projects here are high head developments, the water to be diverted directly at the lake and led through a short, high pressure pipe line or tunnel to the power house located at tidewater.

The pulp and paper plants will ordinarily be located at the point where the power is developed so that transmission lines will not be required.

The Forest Service, with the co-operation of the Geological Survey and the Federal Power Commission, has made detailed studies of all the more important power sites. We have established gaging stations on each and through the use of automatic stream gages have obtained continuous records of the flow of the stream in second feet, for periods as long as ten years. Topographic surveys have been made to show the cross-sections of dam sites, lengths of conduits required and the water storage capacities of the lakes. On the basis of this information the yearlong power capacities and the development costs have been carefully estimated. Our long records of stream flow, supplying basic data on power capacities that cannot be obtained on short notice, are of inestimable value to engineers planning a power development.

The individual powers here are comparatively small. Those considered of outstanding value for pulp and paper manufacture are suitable for mills ranging from 100 tons to 300 tons daily capacity. In many cases power sites lie so close together that additional power is readily available to care for future plant expansions

at any one point. In one instance it is practicable to bring the water from a second site into the power house of another and thus obtain a total of 50,000 horsepower at a very economical figure. A 19-mile transmission line will add 17,500 horsepower from a third site to the other two.

The cost of power development here is unusually low. Estimates by Forest Service engineers and by consulting engineering firms for many projects show development costs of between \$60 and \$75 per electrical horsepower. Total power charges, including interests, depreciation and operation, are estimated at \$6.00 to \$9.00 per electrical horsepower-year and kilowatt-hour costs are placed at  $1\frac{1}{4}$  to  $1\frac{1}{2}$  mills. Direct hydraulic power could be used extensively, if desired, to operate pulp grinders, and this of course would reduce power costs below the figures given above.

It is very doubtful if lower power costs could be obtained anywhere else in the United States or in Canada.

All water power sites are on publicly owned lands and can be occupied and developed under licenses provided for by the Federal Water Power Act. No private lands or water rights have to be purchased before a project can be started. The licenses which are granted by the Federal Power Commission cover a 50-year period with the right of renewal and call for the payment of a nominal rental fee per horsepower-year.

#### Labor Conditions

Southeastern Alaska is linked to the Pacific Coast States by four steamship lines and there is a constant and very heavy movement of people back and forth at all times of the year, so that this is in no sense an isolated region. The recruiting and holding of a large force of woods and mill workers on a paper project here will present no serious difficulties either as regards technical and skilled men or common laborers. The large mines and various government departments operating here have no trouble in holding technical men. As regards common labor, it is the normal condition for more men to be coming into this country than the local industries can absorb. Seattle is a large center for woods and sawmill workers and one that is easily drawn upon at any time by the southeastern Alaskan industries. A majority of the workers in this region are Scandinavians, an excellent class of laborers. In addition, we have a native Indian population of over 5,000, and the mines, sawmills and canneries have found that they constitute an inexpensive and good supply of common labor. Wages are slightly higher than on Puget Sound, but on the whole labor here is about the same sort of problem it is in the Pacific Northwest.

#### Freight Rates

Pulp and paper plants in Alaska will be located on tidewater so that all materials for plant construction and all supplies for mill operations can be brought in by vessel at low costs. Similarly, the mill output will have the benefit of cheap ocean transportation direct from the plant of the world's markets.

One of the most important cost items in newsprint production is coal. Due to cheap transportation costs along the Inside Passage, coal from the Washington fields can be laid down at an Alaskan plant at a total cost of \$6.50 per ton, which appears to be a satisfactory figure for coal used in the paper-making industry.

Due to the keen competition for west-bound tonnage in the intercoastal trade, the ocean freight rate on



sulphur from the Gulf fields to southeastern Alaska will only be about \$8.00 per ton. Limestone is available locally.

The steamship companies operating in southeastern Alaska provide good freight and passenger service to Pacific Coast ports and are in excellent position to increase their facilities to meet increasing demands for transportation in that field such as would result from the development of the paper industry. The local freight rates on newsprint from Alaska would be about \$4 per ton to Seattle and \$6 to San Francisco.

Men engaged in the intercoastal shipping trade estimate that the freight rate on newsprint from Alaska via the Canal to the ports in the Southern States will be \$12 to \$13 per ton in full cargo lots. This is about the same as the rail rates to these states from the large producing centers of eastern Canada and it would seem that Alaskan newsprint should be able to compete successfully in the rapidly increasing markets in that region.

#### Policies Governing Pulp-timber Sales

The policy of the Forest Service is to encourage the development of the paper industry in Alaska as rapidly as general economic conditions will permit, up to the point where the yearly cut will equal the growing power of the forests. It will not permit the development of the industry beyond this point. Timber depletion is thus to be closely guarded against and plants established here are assured that a constant and sufficient supply of timber will be available annually in perpetuity. Moreover, under the system of disposal in effect, the government and not the mill owner assumes the entire carrying charge on the timber supply as well as the risk of loss by fire, insects and disease.

We have designated an area called a "pulp-timber allotment" as tributary to each power site having outstanding value for a pulp and paper plant. The allotment is sufficiently large to provide a perpetual supply of timber to a newsprint mill commensurate in size with the power site. Within this allotment successive sales of timber for the plant will be made.

The first sale contract will cover a 50-year supply for a mill of the size contemplated. The timber is offered for sale by sealed bids at not less than certain specified rates for the first ten years of logging operations. The specified pulpwood rates, which apply to all material to be used for pulp, are now 60c per 100 cubic feet of solid wood for spruce and 30c for hemlock. These rates are subject to readjustment at the end of the ten-year period and at five-year intervals thereafter to make them conform with the then current prices being received for timber in southeastern Alaska.

I wish to stress the fact that the form of pulp timber contract we are offering in Alaska is not a mere permit to cut, renewable annually or at stated intervals, or revokable at the pleasure of the government. It is a firm contract covering a period of 50 years and if for any reason the Forest Service should try to terminate it during this period, the purchaser would have the right to present the matter to the Federal Courts and ask, in case his contentions are sustained, for performance of contract on the part of the government.

It is generally believed that the Pacific Coast, including Alaska, will be the next region to see a large development in the newsprint industry. In my opinion, Alaska offers the best opportunity in that field. The pulp timber in Oregon and Washington is not nearly so accessible as in Alaska and the logging costs which are higher at present will constantly increase as it be-

comes necessary to reach further back in the hills for the supply. The sawmills will offer increasingly keen competition for both spruce and hemlock logs and thus force up the price. The forests there contain a lower percentage of spruce, the more desirable pulping species. If an assured supply of timber for 40 to 50 years to protect the heavy plant investment were to be obtained, an enormous investment in timberlands would be required and the carrying charges in this form of interest, taxes and fire protection would be a heavy burden; also, power costs would be higher in Oregon and Washington and in most cases power would have to be purchased from public utility companies.

We do not yet have any paper plants in Alaska, but in view of the possibilities for cheap wood costs here for many years, an assured future supply of timber without any of the carrying charges, excellent water power at low cost, satisfactory manufacturing conditions, the chance through cheap water freights for entering the expanding markets on the Pacific Coast and on parts of the Atlantic Coast, I believe the time has come when any newsprint concern desiring to transfer or to expand its operations to a new field should give careful consideration to southeastern Alaska.

#### Mill Being Erected At Newberg, Oregon

Construction of the first unit of the Spaulding Pulp & Paper Co. plant at Newberg, Ore., has been started. The plant, which will produce about 40 tons of pulp a day, will be operating within a few months, according to present plans.

The company was organized less than a year ago. Charles K. Spaulding, well known logger and lumberman, is president of the company. Approximately one-half of the \$1,200,000 capital stock authorized has been sold and the remainder is being rapidly subscribed.

The first unit of the plant will manufacture pulp as soon as it is completed. The pulp will be sold on the open market until the paper making machinery is installed.

For many years Mr. Spaulding was a stockholder in the Oregon Pulp & Paper Co., Salem, Ore., and for a score of years he sold pulp timber to the Crown-Willamette Paper Co. He believes that paper manufacturing is the most profitable part of the timber business.

#### Electrical Power Available Near Juneau

According to District Forester C. H. Flory, it is now possible to bring into Juneau, Alaska, a total of 100,000 electrical horsepower and combine it in a single system for industrial uses, particularly for the manufacture of pulp and paper. Sufficient power can be centered on Gastineau Channel to manufacture 1,000 tons of newsprint paper every day in the year.

The individual power sites from which transmission to the Channel is feasible are: Sweetheart Falls, 17,400 horsepower; Tease Lake, 9,100 horsepower; Crater Lake, 17,700 horsepower; Long Lake, 32,000 horsepower. These together with the Gastineau Channel power resources would aggregate about 100,000 horsepower. Power developed from Speel River itself could be transmitted over the same line.

Quantities of timber to supply raw materials for the pulp and paper industry in perpetuity in the vicinity of Gastineau Channel have been set aside by the government for such manufacture.

## The Busy Street Gets the Business

ON Third Avenue in Seattle there is a group of low brick buildings extending better than a block.

On practically every door are signs very similar to each other—"Real Estate", "Realtor", "Homes for Sale". This is Seattle's "Real Estate Row". At first thought it might seem that such close proximity of similar businesses would result in unnecessary competition for public attention. But not so. The prospective real estate buyer is drawn, as if by a magnet, to "Real Estate Row" by virtue of the varied offerings and wide selections in this limited area, and each realtor stands a better chance of being sought out, than if he were located off by himself. Seattle likewise has its "Auto Row", and its wholesale district, etc., each the result of the same trade psychology. This is true of most metropolitan cities.

But what has this to do with the Pacific Coast pulp and paper industry? Nothing in the world, except that the same trade principle applies to any industry, whether large or small, in relation to its market possibilities. But before we make application to the paper on the Coast, let us carry this idea out a little farther.

The proprietor of the neighborhood store may become quite concerned when several competitors move into his field. But if he has the wisdom of vision, he will smile, brush up his shelves, and improve his merchandise and service. He will do his bit toward making the community a recognized shopping district, which will ultimately attract more and better customers.

The situation is quite analogous to the condition in which the pulp and paper mills of the Pacific Coast now find themselves, only on a much greater scale. The recognized pulp and paper "row" of the United States

is in the East. The trade here is regarded as "out in the sticks". Existing mills are adequate to take care of the demands in the immediate trade territory, but no concerted effort has been made by the industry to reach out beyond the Rockies. In fact, only paper board products are made by western mills in any considerable excess of domestic requirements and the market for this surplus extends in general only as far east as the Mississippi.

The big future of the Coast pulp and paper industry lies in its becoming a recognized "row". That means volume and a wide selection of products. The big eastern buyers are not interested in small surpluses, leftovers, odds and ends. They demand volume supplies in cargo lots, before they will deign to do any serious shopping. Neither is it economical for the western mills to make small shipments to distant markets. As the volume of business increases, commodity rates will undoubtedly take the place of the present class rate, with a material reduction in transportation costs. With volume production also come economies in production, price of raw materials, etc.

The transition period of an industry, during the time when it evolves from a strictly territorial project into one with a national field and must adjust itself to meet national demands, is often fraught with "growing pains". The saturation of the local market may seem a hardship until the larger market is firmly established, but the big game is worth the grief.

The pulp and paper industry on the Pacific Coast is facing such a transition, and while many changes are rapidly taking place, the result of each one should certainly be favorable to the western operators.

## Longview Plant to Erect Second Unit

CHARLES F. SCHAUB, president of the Pacific Straw Paper and Board Company, announced early in January that a second unit would be added during 1927 and that the capacity of the present unit will be increased materially.

In speaking of the proposed expansion, Mr. Schaub said:

"For three months we have been interviewing the trade along the Pacific Coast and in China, Japan, Australia, the Hawaiian Islands and the Atlantic seaboard. Indications from these sources point to such a volume of business for us in 1927 that it is going to necessitate the building of a second unit of our industry and an increased capacity for our present unit, and these anticipations will materialize just so sure as did our first anticipations.

"Three of the several reasons for our success, and for any manufacturing concern's success, for that matter, are because, first, we have a strategic location. In Longview I believe the location to be about as near perfect for an industry as can be found anywhere. Second, a high grade finished product to satisfy the trade. Permit my modesty when I say that our product has, in a very few months, become nationally known. It has played a good part in bringing Longview to the atten-

tion of a wealthy trade that otherwise would not have been interested in Longview. Third, Longview is in the midst of raw materials of almost every kind—iron, lime, lumbering, timber and pulping timber, clay, stone, mica, lead and what not, and ocean steamship, river steamboats and barges, paved highways and railways to transport it."

The Pacific Straw Paper and Board Company has a 15 acre factory site on the Cowlitz River waterfront, allowing ample room for considerable development. It has been operating every day except Sundays and Christmas day since its opening on April 2, 1926. Its present investment is estimated at \$375,000. According to Mr. Schaub, it is highly probable that in the near future a new concern manufacturing boxboard boxes and egg crates will be located in Longview.

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Now is the time to send in your subscription for one year to Pacific Pulp and Paper Industry, 71 Columbia Street, Seattle, Wash. Any single issue will contain information many times the cost of subscription.

# Wood Pulp and White Paper on the Pacific Coast

By B. T. McBAIN

**P**ULP wood, as it is known today, includes almost every kind and variety because new processes and changes in old ones have been necessary in late years to secure a sufficient supply of wood for paper making purposes. However, for unbleached white papers, but few woods are generally used.

**Spruce** is the best known of all pulp woods, but many papers advertised as being made from the Blue Spruce are manufactured from balsam, hemlock or others.

**Hemlock.** The Western variety of hemlock in my experience is more like the Western spruce than the Eastern hemlock; the foliage and bark being about the only resembling features.

**Balsam** in the East is like our Western White Fir in almost all particulars except size.

There are other firs known as Silver and Noble, or Larch that are being used to some extent.

Cottonwood or balsam make good filler woods in some grades of pulp.

Alder, Beach Birch and even Maple and some Jack Pine are used for ground wood in small percentages in some of the far Northeastern mills.

In Quebec, Province of Canada, there are millions of acres of so-called pulp wood and the pulp and paper mills are pleased to talk in millions of acres rather than in cords because it sounds so much larger. The average so-called pulp woods of Quebec and other Northern Provinces grow about four to six cords per acre—not as good as much of our so-called stump lands of the far West.

Here on the Pacific Coast there are large acreages of pulp wood lands, being the regrowth since the original logging operations were completed. These "cut over lands" have from 20 to 40 cords or even greater amounts of pulp woods per acre.

Of course, up to the present time, the pulp and paper organizations on the Pacific Coast have considered it a waste of time and effort to even consider these lands, and have owned only the virgin timber, cutting 30,000 to 40,000 feet average per acre and leaving 24 to 40 cords per acre of waste wood behind when logging operations ended.

Probably had paper been made of wood when the timber of the East was still on the stump, Eastern pulp and paper mills would have acted in like manner. However, the lands of the East and Middle West are now about barren of pulp wood of suitable size for use.

Some planting of trees has been started in the East and Middle West, and we are pleased to learn that work to that end is being planned for our Western forests, in some cases actually started.

There are few pulp and paper mills in the East with ten or more years' supply of pulp wood ahead of them; a few more with not over five years' supply and many with none at all, more in this class than any other.

It may surprise some of the readers of this article to know that there are in America:

840 paper mills,  
315 pulp mills,  
525 pulplless paper mills.

These 525 pulplless paper mills necessarily must buy their pulp either from their competitors, who have mills, or from pulp mills without paper mills. However, the most of them buy their pulp from foreign countries.

In 1926 the receipts of foreign pulps and pulp woods show:

Sulphate, 391,593 tons, or 1305 tons daily;  
Sulphite, 1,008,600 tons, or 3,362 tons daily.  
Ground wood, 303,664 tons, or 1,012 tons daily.  
Pulp wood, 1,485,760 cords, or 4,952 cords daily.

In addition to the above America imported from Canada and elsewhere in 1926:

Newspaper, 1,814,575 tons, or 6,048 tons daily.

During the same period of one year based on the cut of the year 1925, the states of Oregon and Washington cut lumber:

Spruce and hemlock ..... 1,300,000,000 ft.  
Fir, cedar, etc. .... 8,700,000,000 ft.

10,000,000,000 ft.

Ten billion feet of lumber cannot be conceived by mortals.

While cutting this vast amount of timber, probably half a million acres or more, the waste was terrific in the logging camps.

When cutting the millions upon millions of logs in the saw mills, again the waste was so great as to be almost unbelievable.

In short, the total waste in 1926 amounted to over 1,000,000 cords spruce and hemlock,  
7,000,000 cords fir and cedar.

It took nearly 5,500,000 cords of wood to make all the pulp and paper imported which with the 1,500,000 cords, or nearly so, imported made 7,000,000 cords used in the pulp and paper and wood imported.

Oregon and Washington, however, wasted over 8,000,000 cords in the same period.

It would take 2,000,000 acres of Eastern Canadian pulp wood lands 100 years to yield our waste in one year.

The pulp and paper industry is headed West; it cannot be otherwise, but let us stop the waste and use it to advantage.

Let's stop the fires in the forests.

Let's plant trees, two for every one cut.

True, we have enough pulp wood for many generations ahead of us, but we also have the natural increase in population to think of. The next generation will show an increase of 20 to 25 per cent in America's population and even greater proportionate increase in paper consumption.

Let's go at this matter in a systematic manner, with one end in view and that is the perpetuation of our pulp wood supply.

The press cannot get along without paper.

The daily newspaper is an absolute necessity.

The importance of the press is beyond argument, next to civilization itself.

Civilization without the press could not endure; the press without paper would be useless.



# Dams and Pollution in Our Streams

The Development of One Industry Should Not Be Destructive to Another

By JOHN N. COBB, DEAN,

College of Fisheries, University of Washington

**T**WO quite serious problems confront the owners of paper and wood pulp plants on this coast and the conscientiousness with which they are faced will, in large measure, fix the attitude of a large and influential element of our people who are interested in our wonderfully valuable aquatic life. I refer to the pollution of our waters through the discharge of the pulp mill and other wastes into them, and the blocking of our streams with dams.

One of the most noticeable features of the Pacific watershed is the large number of rivers, some of them—such as the Yukon and Columbia—being classed among the great rivers of the world. In all of these occur annually runs of one or more anadromous species of fish on their way from their natural home in the sea to the spawning grounds at the head of the various rivers and their tributaries. Among these fishes may be mentioned the five species of Pacific salmon, the steelhead trout, sturgeons, smelt, eulachon and shad, while many of the trouts and whitefishes move up and down the rivers at varying seasons of the year. In addition, there are to be found annually enormous schools of the young of the above species working their way down the rivers to their ocean home, where they remain until nature warns them of the need for returning to the place of their birth in order to do their share in keeping up these countless hoards. It is while they are on their way to spawn that the commercial fishermen and the sportsmen take their enormous toll.

Rivers with pure cold water, unvexed by artificial or natural obstructions, are the prime essentials for a continuance of these enormously valuable fisheries, and it is not surprising that the people of the various Pacific states, provinces and territories, are manifesting constantly increasing interest in their preservation. Stringent laws regulating these matters are now upon our statute books, and it behooves those now engaged, or intending to engage, in the pulp and paper business to study them carefully for the time is near at hand when the public will demand a literal compliance with them.

## Obstructions in Our Streams

So far, but few dams have been installed by wood pulp and paper manufacturers, most of the present plants being located on tidal water and using either stream, or electricity purchased from commercial companies, as motive power, but it is a question of only a few years when they will have to be placed nearer the source of the wood, and then individual dams for generating power and furnishing water will be necessary.

With ordinary dams less than 40 feet in height it is possible to install a pool-and-fall fishway that will work, provided the proper design is used, and care is taken to adjust it to meet the peculiar conditions that arise in connection with each project.

For dams over 40 feet in height, and especially where salmon are concerned, it will be necessary to employ some method for lifting the fish over the obstruction. While the author's research work on fishways in 1924,

1925 and 1926 proved that it was feasible to lift salmon, either with or without water, almost any height desired, the problem of leading the ascending fish into some compartment from which they can be picked up by the lift is one that must be solved separately for each installation. The proper procedure to be followed in such a case should be to call in some fisheries expert who is familiar with the latest developments in fishways, and have him study the proposed location, observing particularly the formation of the banks and their composition, the flow of water at various seasons of the year, the movements of the migrating fish, and any other factor that may affect their movements. When this has been done properly, the expert will then be in a position to report whether there would be any possibility of success, and if so, what type and where the fishway should be installed.

The problem of getting the fish down the stream is a distinct one in itself. The salmon practically all die on the spawning grounds, but the steelhead trout and other anadromous fishes may return to spawn a number of times. My researches in 1925 developed that trout could be allowed to go over a dam 170 feet in height, and if there was a deep pool at the foot into which they could drop the loss would be very slight. The essential thing in getting these fish safely down over the dam is a sufficient volume of water at all times during the run to permit of the free movements of the fish, and strange to relate, this is usually where the dam owner falls down. The young fish pass down during May and June, and in his fear of a shortage of water the owner frequently cuts down the discharge over the dam to a minimum, or allows none at all. This is also true with the fishway at certain times during the upward runs. It should be distinctly borne in mind that no fish can work up stream or pass safely over the dam on the way down, unless there is a sufficient volume of water in which it can move.

## Pollution Of Our Waters

The chief sources of pollution are from domestic sewage and industrial wastes. The first named may affect the public health directly when it becomes the means of transmission of the organisms of infectious, water-borne disease from one person to another, and it affects the public health indirectly when it becomes a contributory agent to that final result. The admission of such infectious material as city sewage into a water supply is a direct menace, but its ill effects may be largely offset by sewage treatment, dilution, and natural purification in the stream and purification of the water supply.

The presence of industrial wastes in our streams constitutes an indirect menace to the public health in so far as they may draw upon the streams' natural purifying power, thereby delaying or preventing the ultimate disposal of directly infectious matter. They may furthermore add to the burden of water-treatment



works and decrease both their efficiencies and their margins of safety. Industrial wastes also are a direct menace to the animal and plant life of our streams, and in this way, when present in excessive quantities, do incalculable damage to the fish and their food.

When sewage and industrial wastes are present in large quantities in a stream the economic complication introduced is considerable. The relation of sewage treatment to water supply is a social or community problem to be dealt with in terms of public welfare and at public cost. The utilization of a stream for the disposal of an industrial waste, however great the resulting evil, may be a vital necessity for the well-being of an industry upon which the prosperity of the community itself largely depends.

It, therefore, becomes necessary in approaching this problem to determine whether any alternative method of disposal, or any remedial method of treatment, other than the total prohibition of dumping into our waters, be available or can be devised. To be at all popular with the manufacturer such a method must, first of all, be reasonable in cost, consideration of reasonableness being based upon the relative additional charge the treatment in question will impose upon the cost of the final products of the industry. It is true that some industries are in position to increase their manufacturing costs by the installation of expensive treatment works, but there are others that are not and that the more expensive the recommended remedy the less the likelihood of its adoption.

Utilization of waste products is naturally the ideal solution. In many cases in the past this has been found possible, and investigations which have been begun to relieve a nuisance have succeeded in developing recoveries of great value. In the matter of utilization of wood pulp wastes research has developed that the yield will probably merely repay the cost of same, and possibly not even this much. Partial recoveries of by-products, and some reduction in the net cost of treatment of this and other similar wastes, is always a possibility.

In tidal waters, and in streams of large volume, the waste products from a very limited number of plants soon becomes so diluted as to cease to be a further menace and the waters again regain their purity, but in a stream of small volume or in a small lake the reverse is true.

At the present time most of the paper and wood pulp plants in the State of Washington are located either on tide water or along the banks of large rivers. Recently Professor Crawford, of the College of Fisheries, has completed for the State Department of Fisheries an investigation of the effects of pulp mill wastes on aquatic life. In summarizing his observations of conditions as they exist today Prof. Crawford has the following to say:

"While at present there does not appear to be any danger from pulp mill wastes it should be pointed out that more than one pulp mill in any of the localities covered by this investigation may become a menace. The principal danger exists when large mills of the sulphite type are located on small bodies of water or on ponds where there is no free circulation of the water. Waters already heavily polluted with sewage or other aquatic wastes should be closed to sulphite mills on account of the oxygen absorbing powers of the sulphite liquor."

Prof. Crawford's warning should be borne in mind for ultimately as the supply of pulp wood available

near tidewater decreases more and more plants will be moved to the upper reaches of the rivers, where the chances of great damage from the resulting wastes will be much enhanced, and it behooves the manufacturer to give serious consideration to the feasibility of eliminating the worst part of the waste before discharging the remainder into the stream.

### International Appraisal Association Opens Offices in Oregon and Washington

The International Appraisal Association, an organization composed of leading business men and engineers, which originated in Los Angeles late in 1925 and which began business as a corporation with headquarters in that city early in 1926, has recently established an Oregon-Washington branch at 716-17-18 Yeon Building, Portland, Oregon, under the state management of Dayton E. Smith.

Following the opening of the Portland office additional offices were established at the principal business centers of the two Northwestern states, the Seattle office being located at 810-11-12 Seaboard Building, and in charge of James M. Stout, district manager, assisted by Percy E. Wright, engineer-in-charge. The Tacoma office, which was opened January 1st, is located at 716 Washington building, and is in charge of A. B. Ayerst, and under the general supervision of the Seattle office. Mr. Ayerst has for many years been identified with the pulp and paper industry, and has built and operated mills throughout the states common to this industry.

The organization is headed by Bruce N. Griffing, director and executive manager, Shelton, Connecticut, assisted by Dae C. Lantz, general manager, Los Angeles; Elmer F. Good, of Long Beach, California, and Dayton E. Smith, of Portland, Oregon, are members of the advisory board. Of the executives here mentioned, Mr. Griffing is a capitalist, Mr. Lantz an analytical and management engineer, Mr. Good a retired banker of Long Beach, and Mr. Smith, formerly comptroller of the Union Carbide & Carbon Company.

It is the aim of the organization to handle appraisals in any state or any country, using only such engineers as are fully qualified for the work in question. Industrial Surveys, Bond and Stock Issues, Tax Equalization, Valuation in Litigation, Fire Loss and Adjustment, and General Appraisals come within the scope of the international plan, each assignment being handled by either the local organization or by specialists brought from other offices as may be required.

In the states of Oregon and Washington, where the logging and lumber industries predominate, it is planned to give special attention to timber lands, saw mills, pulp and paper mills, veneer plants, box factories and other industries dependent upon forest products.

### Financial Assistance Offered Port Angeles to Increase Water Supply

The Washington Pulp and Paper Corporation of Port Angeles has offered the City Water Department an advance of \$19,000 at six per cent interest, payable in water service, for constructing a 16-inch water main connecting the main reservoir with Tumwater Creek. The company plans to run a main of its own direct to the plant. This is to meet the plant's approaching need for more water for operation of the new addition which is expected to be ready for production by April 1.

# Waters in the Northwest Best for Pulp and Paper Making

Abundance of Soft, Pure Water Obviates the Need of Filtration or Other Treatment—Native Lime Rock Easily Available, and Also Sulphur, Sodium Sulphate, Barite, Diatomite.

By MANDUS E. BRIDSTON

**W**HEN pulp and paper making potentialities in the Pacific Northwest are considered, mention is generally first made of the inexhaustible supply of pulp timber. True, this is of major importance, but many other factors enter into a profitable program of pulp and paper production.

The significance of the sum aggregate of other production costs was emphasized by one of the largest pulp and paper mill operators in Washington. He told the writer that the cost of pulp timber for his mills represented only 15 per cent of the gross production and distribution costs. Hence it is apparent that other aspects of production play an important part in pulp and paper manufacture.

Aside from the abundance of hydro-electric power, of which the Northwest can rightfully boast, this region offers many other production advantages to the pulp industry. Process materials are easily available, such as adequate supplies of pure, soft water, native lime rock available in commercial quantities; sulphur only a short boat-ride either from New Orleans or Alaska, and large deposits of sodium sulphates in Eastern Washington.

In consequence of the very large volume of water required in pulp and paper manufacture an adequate supply of water of a suitable degree of purity is a matter of prime importance. The quantity of water used will vary greatly with the kind of paper being made. However, one authority states that the volume of water used in making a ton of paper is probably never less than 50,000 gallons and is sometimes as much as 200,000 gallons.

One mill making 80 tons of bag and wrapping paper per day, with which is considered a sulphite mill making 125 tons of unbleached sulphite pulp, uses approximately 15,000,000 gallons of water per day for all purposes.

The water serves as a solvent and a carrier of chemicals, as in digesters and cookers; it conveys the pulp through the various processes; it is the medium in which the wastes are removed; and large amounts are used in the boilers and heaters. In the Eastern mills water is usually treated for hardness or to remove suspended and organic matter. However, this is rarely necessary on the Pacific Coast, where streams are generally clear and remarkably free from mineral content. This represents a considerable saving in production costs, and thus gives the western operator a competitive advantage, for only in rare instances is it even necessary to provide a sedimentation basin or tank, the water being taken directly from the stream and used without treatment of any kind.

It has been estimated that 95 per cent of the surface

water of the Pacific Northwest is sufficiently pure to use in pulp and paper making in its original state. The exception is generally in streams of glacial origin, such as the White river in Washington, which contains a considerable amount of sediment due to glacial erosion. Other notable exceptions in this state are the Skagit river, Snoqualmie and Snake.

The marked absence of turbidity in Northwest streams is largely due to the small amount of erosion as a result of the uniformity of timber coverage. Even in the cut-over areas the climatic and soil conditions result in a quick reforestation that prevents undue erosion, and hence very little surface soil finds its way into the rivers.

A few years ago the U. S. Department of the Interior made a survey of surface waters in Washington, and concluded its report with the following summary: "The river waters of Washington are unusually low in mineral content and are good for general industrial use or for irrigation. What little suspended matter they carry is coarse and readily removable. The color of some renders it advisable to purify them by coagulation and rapid sand filtration, rather than by slow sand filtration."

## California Plant Near Completion

The plant of the National Paper Products Company is progressing rapidly and it is expected that the factory will be in operation sometime in March. This is the first unit to be built in South Gate, California, by this company. When completed, the plant will employ about 250 men in the manufacture of paper corrugated boxes. The estimated cost of this unit is \$750,000.

The producing floor of the factory covers four acres. The roof is of the saw tooth type, to allow for sufficient light and proper ventilation. The storage room for roll paper is to be entirely of concrete, with walls 50 feet high. The plant will use electrical power throughout, taken from a substation but 200 yards away.

The company has its own water system providing 10,000 gallons per minute from wells 756 feet deep. Auxiliary equipment includes a concrete cylindrical reservoir with a capacity of 180,000 gallons, and an 110-foot high steel water tank holding 100,000. A complete fire protection system is also being installed.

A second unit will be erected later at a cost of approximately \$2,000,000, which will employ more than 1,000 workers. This unit will consist of a paper mill for the manufacture of various paper products.

R. C. McCrystal is manager of the Los Angeles district, offices of which are at present located on South San Pedro street, Los Angeles.

### Sumner Iron Works Has Varied Field

In the many years of their manufacturing experience, Fred W. Sumner, president of the Sumner Iron Works, and his associates have invaded a variety of fields uncommon to such organizations. The company started production at Hutchinson, Minnesota, making harvesting machinery. About 34 years ago they moved to Everett, Washington, where they are now located.

In the first few years after this move, they devoted their efforts to building marine and mining machinery, developing many types of equipment in these fields, and firmly establishing their reputation as responsible manufacturers of efficient machinery. Later they developed sawmill and logging equipment, ably serving the lumber industry for many years. Today they are still among the prominent concerns building machinery for the handling of timber.

About six years ago they entered the wood pulp field, and since that time have developed a complete line of machinery for the manufacture of wood pulp. The success that has been attained is testified to by the installations they have made, among which are complete cut-up plants in the Washington Pulp and Paper Corporation of Port Angeles, The Oregon Pulp and Paper Company of Salem, Oregon, and the St. Helens Pulp and Paper Company of St. Helens, Oregon.

A variety of work has been done on the Everett Pulp and Paper Company's plant. They have installed 23 large steel tanks, blow pipes, five agitators, 25 reduction gear drives, a long Hog fuel conveyor for boiler feed and six simplex burners.

The concern is headed by Fred W. Sumner, president; T. B. Sumner, vice-president and general manager; M. S. Mitchell, treasurer; F. F. Sumner, secretary, and George B. Sumner, works manager. P. F. Lueth is chief engineer of the firm, and George W. Dorman is chief designer. Offices are maintained in Portland and Vancouver, B. C., in addition to the head office at Everett.

### Federal Trade Commission Wins Case Against Pacific Association

An investigation and legal battle begun several years ago was culminated January 3 when the Federal Trade Commission won its case against the Pacific States Paper Trade Association in the Supreme Court of the United States. The court reversed the ruling of the Circuit Court of Appeals in San Francisco, which had set aside two of the paragraphs of the Commission's "cease and desist" order. The Supreme Court upheld the Commission on the two paragraphs previously set aside, and refused to review the other paragraphs, as requested by the association.

### Bellingham Pulp Chemist Dies at Work

Robert Wilke Clark, 23 years old, chemist at the San Juan Pulp Manufacturing Company of Bellingham, died in a local hospital January 14 after futile attempts to revive him with a lungmotor and oxygen. His death is believed to have been the result of inhaling gas fumes while working in the plant. He formerly was a student at the University of Washington, and had come to Bellingham from Olympia a short time ago. He is survived by his widow, mother and three sisters.

### Canadian Government Threatens Restriction

Private dispatches received in Wall Street from Quebec say the Canadian government plans a policy whereby existing newsprint mills in the province will be guaranteed an adequate supply of pulpwood and will discourage building of new mills, other than those arranged for during the next few years.

### Kraft Mill at Bucoda, Wash., Being Planned

A mill of 50 tons capacity for the manufacture of Kraft paper products is quite likely to be a realization of the near future. Just who is fathering this project can not be learned.

### Cascade Paper Mills Adds Soda Pulp Mill

A new soda pulp mill for the Cascade Paper Mills, Tacoma, and a new Pusey & Jones finishing machine soon to be installed will make of that mill one of the most complete plants in the West.

### New Soda Pulp Unit of Everett Starts

The new soda pulp mill of the Everett Pulp & Paper Co., of Lowell, is now under full operation. A new paper machine also has been put in commission and the two new installations greatly increase the mill's producing capacity.

### New Mill for New Westminster (B. C.) Planned by Pulp Men

A new pulp mill of approximately 50 tons per day is being projected by George Whalen and Jake Herb. This mill will use clean waste exclusively, as taken from several finishing lumber mills of New Westminster.

Mr. Whalen and Mr. Herb are experienced pulp men of wide activity in the West, and are assured of sufficient waste material for many years.

### Anacortes Mill Installs New Pulp Digester

Work on the new pulp digester of the pulp mill at Anacortes which is utilizing clean waste from the Anacortes Box & Lumber Company's mill as well as adjacent mills, has been completed and the total pulp production will be 50 tons per day. The Anacortes pulp mill is an outstanding example of the profitable utilization of clean waste.

The Bellingham plant operating in a similar way to the mill at Anacortes is turning out 50 tons of pulp per day.

### Extra Pay for Pulp & Paper Mill Employees as Christmas Gifts

The W. P. Hawley Paper & Pulp Company and the Crown-Willamette Paper Company of Oregon City, Oregon, presented each of their 600 employees with pay for two days as a holiday gift.

### Marshfield, Oregon, May Have Mill

W. D. Page, investment and loan agent of the Crocker National Bank of San Francisco, and V. Knight Sturges, pulp and paper mill representative, were in Marshfield, Oregon, about the middle of January seeking a suitable location for a pulp and paper mill. It is said that the Crocker National Bank will construct such a plant here if a site can be obtained.



## EDITORIAL

### This Journal—Its Purpose and Policy

To promote the sound development of the pulp and paper industry in the West in a manner that will result in the maximum benefit to this region and the greatest prosperity to its people.

This journal will chronicle the news of the industry and act as a medium of exchange of technical and practical information. Its columns will be open to all who have constructive ideas to present for the advancement of the industry's best interests.

The products of the pulp and paper industry are basic commodities in universal and steadily increasing demand. While this region is peculiarly favored in all the requisites for the development of this industry to first magnitude, it must be recognized that its products must go into the markets with those of other countries of the world, and be prepared to meet that competition on the basis of merit and price.

We have no intention of booming the industry or in any way exaggerating its possibilities. The fact is that some serious problems confront its development in this section. Those who rush blindly into it will court disaster. Large capital, and exact technical and operating knowledge are required.

We are for the promoter of legitimate enterprise. We are against the mere exploiter.

The policy of this journal will be independent, with no preconceived theories to advance.

While we will publish all matter we can obtain, designed to bring out the facts that will be of assistance to those engaged in the industry, publication of contributions does not mean endorsement by this journal of statements therein.

### Investigate Before Investing

As in every new field—mining, oil, etc.—promoters are springing up in every community in the West with paper mill propositions. In many cases they are likely to be mere stock selling schemes. Thorough investigation of organizations certainly should be made before making any investment in them.

Some of these are legitimate enterprises. Others are schemes designed to make money for the promoters, from 25 per cent to 50 per cent of the funds subscribed going to them. Such companies are usually poorly conceived and often do not get beyond the promotion stage. Even if their plants do get into operation, very skillful management would be required to succeed.

Too often these companies are organized by financial interests which are expanding their field of operations, without any actual experience in the field of pulp and paper manufacture. An industrial enterprise controlled by moneyed interests and managed by salaried executives of inferior calibre is usually pre-destined to failure. The financial organization is only the first brick of a great structure which requires a firm foundation of experience, sound walls of technical and business knowledge, and steel reinforcement throughout.

Conservative business men in the Pacific Northwest do not want a boom here. Neither do the paper manufacturers want unnatural growth in their industry, sponsored by high finance. Such over-inflation almost

always results ultimately in serious deflation and its accompanying evils.

The development of the pulp and paper industry must not be carried on by speculators who cannot give it the sound basis it requires. Let us hope that expansion will take place along rational lines, each project with a firm foundation, and backed and managed by men of wide experience in our own field.

### For These Kind Words, Thanks

Today in the news columns of the Journal of Commerce there is announced a new journal, to be devoted to the pulp and paper industry of the Pacific. It is an enormous field and of great importance to the Pacific Coast. That the new journal, which is to be known as the Pacific Pulp and Paper Industry, is to be published by Miller Freeman assures its success.

Mr. Freeman is recognized as one of the leading industrial publishers of the United States. His publications in New York, San Francisco and Seattle have behind them years of experience. That Mr. Freeman should recognize the need of a publication in the West devoted to the pulp and paper industry indicates that growth of that industry in the West is to be expected and, furthermore, that Seattle will undoubtedly become its Western center.—Seattle Journal of Commerce.

### Work Started on Astoria Kraft Plant

Construction work began on January 24 on the site for a 100-ton capacity sulphate pulp and paper mill to be built at once in Astoria, Ore., by the Northwestern Pulp and Paper Co., an Oregon corporation. Contract for the construction of a bulkhead foundation and about 2,000 feet of dock has been let to the Gilpin Construction Co., Portland, Ore.

The Northwestern company has filed an application with the state corporation commissioner for authorization to increase its capital stock from \$25,000 to \$3,000,000. The stock has all been subscribed for and erection of the plant is to be pushed to completion. The cost of the plant is expected to approximate \$1,500,000. Present plans call for having the plant in operation in about eight months.

Water for the operation will be piped nine miles, from a reservoir of 600,000,000 gallons capacity to be built at Youngs River falls. A 30-inch pipe will deliver 11,000,000 gallons per day to the plant.

Buildings to be erected include a boiler house, an engine room, a wood room, a digester room and machinery room. All the buildings will be extra large to allow for expansion of the plant to 200 tons capacity. Equipment ordered includes six boilers, three of which will be used in the reclaiming department, 30 chippers, one vertical dryer of 120 tons capacity, and six 40-foot digesters. The plant will be located on a 52-acre tract occupied by the McEachern ship yards on Youngs bay.

The company is headed by A. V. Allen, who is also president of the Youngs Bay Lumber Co., with a saw mill adjoining the paper mill site. The company has control of 22,000 acres of timber and has contracted with six mills for hemlock and fir waste to be used in making pulp. At first the company will manufacture only kraft pulp. The entire output has been placed under contract to eastern manufacturers. The new plant will be the largest kraft mill west of Wisconsin, according to V. K. Sturges, of Portland, one of the promoters of the enterprise. The undertaking is being developed by eastern capital, Sturges said.



## ***AGENTS FOR***

### **Bleached Sulphites:**

TOTEN  
FELDMUHLE  
RATTIMAU

### **Easy Bleaching Sulphites:**

MJONDALEN  
GULSKOGEN

### **Strong Unbleached:**

HOESCH  
FELDMUHLE  
BALTISCHE

### **Kraft Pulps:**

K. H. B.  
DYNAS  
OBBOLA

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## **PERKINS-GOODWIN CO.**

33 West 42nd Street

NEW YORK

***Established 1846***

# Alaska Pulp Timber and Power Applications Filed

To encourage the establishment of the paper manufacturing industry in Alaska, the Federal government has offered two large tracts of timber for competitive bidding. One tract is in the northern part of the Tongass National Forest, near Juneau, and the other is in the southern part of the forest near Ketchikan. Bids on the former will be opened April 25 and on the latter April 15. Two applications have been received for the southern tract, and one for the northern.

Each sale will require the erection of a 200 to 500-ton mill and an investment of at least eight or ten million dollars. Five billion board feet of pulp-wood will be embraced in each transaction; enough to supply a 500-ton mill operating 300 days a year for fifty years. This allows ample time for regrowth, and assures a perpetual supply of pulp-wood.

The lowest bids which will be considered are 60 cents per hundred cubic feet for spruce and 30 cents for hemlock pulp-wood, the price to remain constant until April 1, 1942. The price will be determined on the basis of actual current value for each five years after that.

A number of applications for permits for power sites have also been received, according to word received from O. C. Merrill, executive secretary of the Federal Power Commission. Several of these cover the same sites, and it will remain for the Commission to hold hearings and decide upon the merits of each proposition.

Regarding the power sites applied for, Mr. Merrill says:

"These applications all propose the development of water power in connection with paper manufacture. The Forest Service and the Federal Power Commission have agreed to co-operate in the consideration of joint paper and power projects in Alaska and such consideration is now in progress. I am furnishing below brief descriptions of joint paper and power projects in Alaska which are now pending, these descriptions being copied from the press notices issued at the time the applications were received:

**No. 586.** Thebo, Starr & Anderton, (Inc.) have applied for a preliminary permit for an installation on Long, Crater, and Sweetheart Creeks and Speel River, approximately 30 miles southeast of Juneau, Alaska, within the Tongass National Forest. The types of the structures have not yet been determined. A preliminary estimate of the amount of power which may reasonably be produced is 104,500 continuous horsepower.

**No. 698.** Mr. M. L. Requa has applied for a preliminary permit for a power project to be located on Speel River, Long, Crater, and Sweetheart Lakes, and that part of Tease Lake not appropriated, affecting the Tongass National Forest, and being about 50 miles northwest of Juneau, Alaska.

**No. 753.** Mr. William Randolph Hearst has applied for a preliminary permit for a power project at Port Snettisham, in the Tongass National Forest, Alaska. It is proposed to use the power for a pulp and paper mill to be constructed in the vicinity of the project.

**No. 755.** Mr. George T. Cameron has applied for a

preliminary permit for a power project on Crater and Long Lakes, near the mouth of Speel River, at Snettisham Inlet, in southeastern Alaska, proposing to use the developed power in operating a mill designed to produce 200 to 600 tons per day of newsprint paper. It is proposed to erect a power house near the mouth of the river, but the location of the proposed paper mill has not been determined.

**No. 758.** Messrs. I. and J. D. Zellerback have applied for a preliminary permit covering an extensive power development involving eight creeks and lakes on Revillagigedo Island, and Punchbowl Creek and Lake, near the entrance to Rudyerd Bay in the vicinity of Ketchikan, all in the Tongass National Forest, southeastern Alaska. It is proposed to develop power for the operation of a pulp and paper mill to be built near the head of Thorne Arm.

**No. 769.** The International Paper Co. has applied for a preliminary permit under which it is proposed to initiate power developments involving various creeks and lakes on Revillagigedo Island, near Ketchikan, in southeastern Alaska, within the Tongass National Forest, from which power will be used in manufacture of paper.

The Port Snettisham group of power sites was formerly applied for by the Speel River project and Alaska Pulp and Paper Company, French Bank Building, San Francisco, California. A license was issued to these applicants only for the Tease Lake unit. The application for the remaining units was rejected because the applicants were not prepared to proceed with their development. It is understood, however, that they still have an interest in these sites and may be considered as potential applicants."

## Graham Island Development Planned

Reports from Victoria, B. C., state that a new port will be opened on Graham Island as an outlet for the new pulp timber limits of the Powell River Pulp and Paper Company, Limited. This follows the recent Patullo timber sale to the Powell River company.

According to Michael Manson, the company plans development to the extent of \$1,250,000. A total of \$500,000 will be spent in creating the new port alone, and an extensive logging railway program has been laid out. The plant at Powell River, B. C., recently doubled its capacity and the new move will insure an adequate supply of raw material for many years.

## A Valuable Bulletin

We have received, through the courtesy of the Chief Forester at Washington, a limited number of copies of Bulletin 1241, entitled: "How the United States can meet its present and future pulp-wood requirements." This is a survey of the wood pulp industry of the world, its future requirements and sources of supply, with conclusions of particular interest to those considering engaging in the business in the West. This journal will be glad to send copies free, while they last, to all who apply.

# *Plentiful* **Hydro-Electric POWER**

## *Abundant, Dependable Current for Pulp and Paper Manufacturing*

**W**ITH thirteen hydro-electric and seven steam plants, all interconnected, the Puget Sound Power & Light Company is able to give constant service to the pulp and paper industry in the Puget Sound country. These plants have a total output of 229,890 horsepower.

For many years this company has endeavored to encourage the establishment of new industries in this territory and has sought to create a power situation that would be attractive to manufacturing enterprises.

The Puget Sound Power & Light Company always has had available sufficient power to meet all demands. Never has an industry been turned away from this territory by reason of lack of electric power.

Pulp and paper manufacturers contemplating establishing mills in Western Washington are invited to confer with our engineers.

### **PUGET SOUND POWER & LIGHT CO.**

**Electric Building, Seattle**



### Tacoma Tideflat Wells Promise Water for New Industries

The attempt of the City of Tacoma to provide water for industrial enterprises on the tideflats by sinking wells at strategic points promises to be successful, according to reports from Superintendent W. A. Kunigk of the Water Department, and Ira S. Davisson, commissioner of the Department of Light and Water. A well is being drilled near Hylebos waterway, and it is hoped that an artesian flow will be obtained. Indications are that the pressure is very good, and the well will no doubt be sunk deeper in the expectation of encountering other water strata of even greater pressure.

In a statement the latter part of January Mr. Kunigk said: "We went down with a 24-inch casing 470 feet through sedimentary formation. From there on we used an 18-inch casing, going to a depth of 540 feet. From elevation 470 to 540 we penetrated coarse sand, gravel and boulders, from which formation we expect to develop our water supply. The actual depth of our hole is carried to 562 feet, but we encountered very hard formation at this depth and we are going to make a test run to try the capacity of our present lay-out before we proceed going to a greater depth. We expect to have definite information regarding the capacity of our well as it now stands within about eight or ten days.

"In case the development of water from wells would not be an economical and satisfactory proposition, we are ready to develop some of the water sources which are available in the Puyallup Valley, a short distance from town.

"We expect to be able to furnish water to pulp and paper industries at about two cents per 100 cubic feet, or \$26.67 per million gallons, either from the wells or from any of the other sources which we now have under consideration."

It is said that several pulp and paper mill projects are about to be located on the tide flats, each of which is asking for initial supplies of one to two million gallons of water a day. If the drilling of wells is as successful as the first gives promise, it will be possible to meet these demands readily from subterranean streams.

### Salem Mill Continues Expansion

The Oregon Pulp and Paper Company of Salem, Oregon, has been continually enlarging its plant during the last year, and when the present plans reach their culmination, the capacity of the mill will be nearly three times what it was in January, 1926. The entire plant is being practically rebuilt, new acid towers are being added, as well as additional machinery, etc. This development is taking place under the able direction of C. F. Bereyl, general manager.

According to the Salem Statesman, "The Salem paper mill managers have developed a process whereby red and Douglas fir may be converted into high grade papers as easily and cheaply by the sulphite process as white fir or hemlock—something new; something not known elsewhere on earth. The Salem mill can make sulphite fit for artificial silk or 'rayon'. No other mill in the United States reaches this perfection, so far. The eastern mills making 'rayon' get their bleached sulphite from Sweden.

"In the making of bond and letter and envelope papers of the highest grades, which is a new line in this institution, and which gives great promise, a small percentage of balm wood or cotton-wood is being used.

Little of this wood has been used here up to a very short time ago.

"There is an experimental plant at this mill. Experiments are being and will be carried on constantly. Whenever there is anything new in the manufacturing of high grade specialty papers, the Salem mill people will 'try it once', and if it is worth adopting, they will adopt it."

Salem is the center of a great timber industry, with several big lumber mills operating. The waste from these mills is said to be sufficient to supply several pulp mills in addition to the one now operating.

### Sulphate and Sulphite Mills for Astoria, Ore.

Astoria will have two modern pulp and paper manufacturing enterprises within a short time, it is said.

The Astoria Box Company plans a sulphite mill and the Allen-Vaughn Company the erection of a sulphate mill.

It is understood that both of these proposed mills will use the waste by-product from their own or adjacent mills.

### Newberg, Ore. Will Have Modern Paper Mill

The Spaulding Pulp & Paper Co. is preparing plans for the erection of a modern pulp and paper mill at Newberg, Ore. It will have a capacity of 50 tons to start with.

The new mill will manufacture sulphite pulp and turn out various paper products. The Spaulding Pulp & Paper Co. owns its own timber, which is located adjacent to the mill site.

### Los Angeles Mill to Install New Tissue Machine

The California-Oregon Paper Mills, Los Angeles, Cal., are preparing the foundation for the installation of a new tissue paper machine. They are large producers of paper specialties.

### Revillagigido Island, Alaska, Power Site Group Popular

A power site group in the Ketchikan district of the Tongass National Forest, consisting of four major power sites and two or three minor ones now has three applicants for preliminary permits. The first of the three applicants was C. R. Berry, who after exhaustive examinations filed in January of last year. Nine months later. I. and J. D. Zellerbach made application. About two weeks ago the International Paper Co. made application.

The group comprises one of the largest projects in Alaska, having a possible power factor of 80,000 h.p. hydroelectric energy. Allocated to these power sites is a possible fifteen billion feet of pulp timber, or 22,000,000 cords, consisting of hemlock and spruce in ideal proportions.

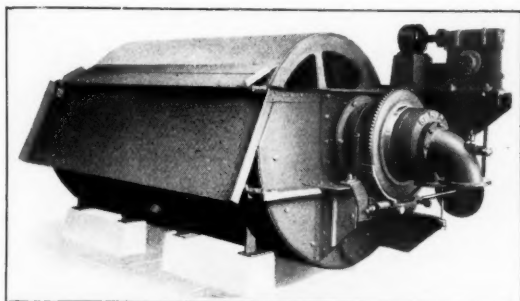
It is estimated that a maximum capacity production of 800 tons per day could be maintained continually by virtue of the rapid re-growth of the timber of that region.

### Hawley Mill at Oregon City Expands

The Hawley Pulp and Paper Co., Oregon City, Ore., is planning extensive new work at its local plant. V. D. Simons, Chicago, paper mill and industrial engineer, is making the plans for the new work.



# OLIVERS



Every day in the year each one of these

## OLIVERS

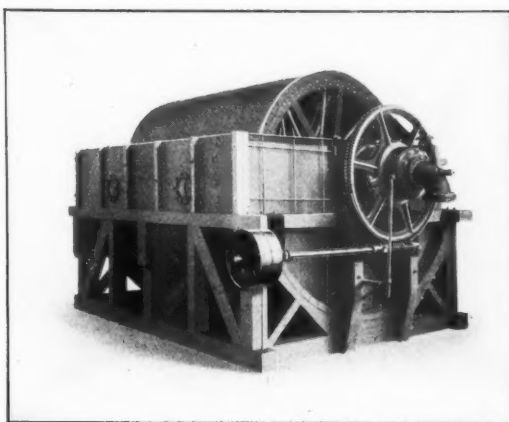


### OLIVER

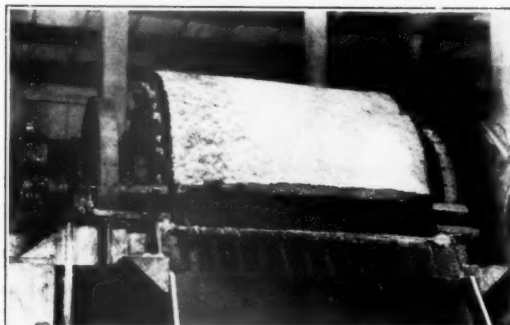
Deckers,  
Save-Alls,  
Pulp Washers,  
Lime Mud  
Washers,

Brown Stock Washers,  
Ground Wood Deckers,  
High Density Thickeners,

have greatest capacity per unit of filtering area with lowest time loss and cost for replacements per ton handled.



is piling up profits for every one of over one hundred Pulp Mills where they are installed.



## Oliver Continuous Filter Co.

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London  
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Johannesburg, So. Africa, E. L. Bateman, The Corner House

# We Offer Common Stock In New Wood Pulp Plant

**T**HIS is the first opportunity that the public has had, we believe, to participate in the large dividends on common stock of a western pulp mill that has been built without issuing promotion stock, preferred stock or bonds.

This new plant, on Puget Sound in the heart of the country's greatest supply of raw pulp material, is built and will be in operation in February. Already orders are on hand assuring the sale of the entire output at attractive prices. The plant and four and one-half acres of land are owned outright by the company free of debts. The site is on tide-water with rail connections. A stream of pure, fresh water runs through the property giving an ample supply for all operations the year 'round.

Spending their own money, the organizers of this company have spent care-

fully and taken all discounts offered. As a result, this plant is now practically completed at a cost far below the usual expenditures. While we do not guarantee any fixed dividends, we believe earnings on common stock will range from 20 percent to 30 percent. The men operating this company are thoroughly experienced in pulp and paper manufacture and have been successful in all their undertakings.

For a limited time we can offer common stock in this unusual enterprise. Only 1500 shares left out of the entire issue of 10,000.

## No Bonds—No Debts No Preferred Stock

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**INDUSTRIALS**

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Send me full details of your offer  
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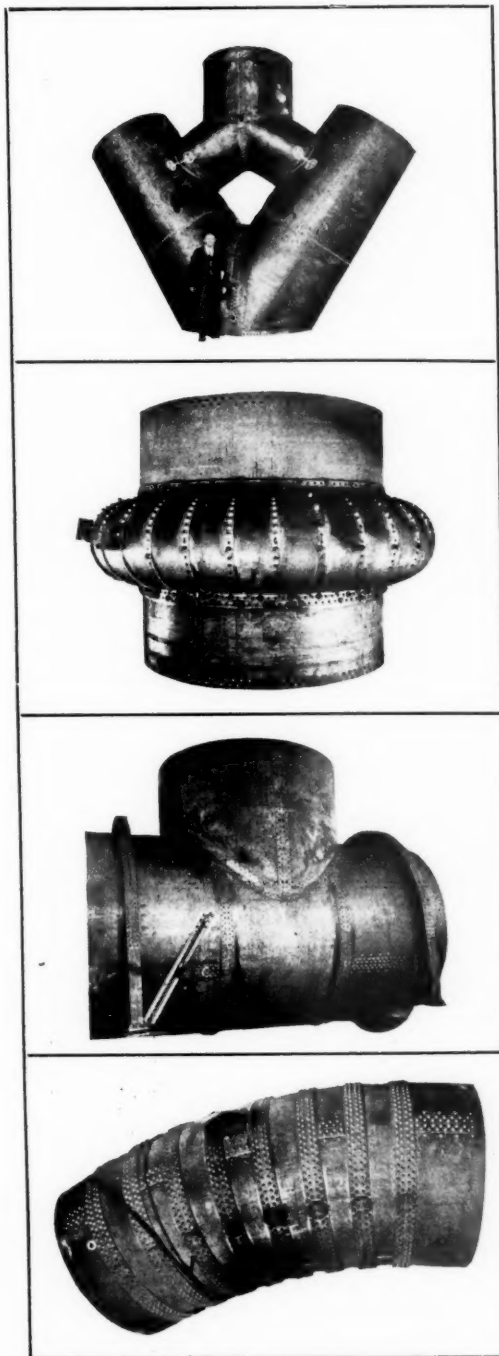
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**40** YEARS of service to the varying needs of the Pacific Northwest — from 1887 to 1927—places the COMMERCIAL BOILER WORKS in an experienced position to serve the

## Paper and Wood Pulp Industries



Manufacturers of Marine and Stationary, Fire and Water Tube Boilers, Digesters, Diffusers, Tanks, Etc.



The pictures on this page show the variety of work that is being handled by the

## COMMERCIAL BOILER WORKS

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# Industrial Centers Shift

One of the greatest business transitions in the history of the United States is now in progress, due to "the shifting tide of population, sources of raw materials, new routes and methods of transportation." So remarks the New York Commercial, calling attention to the way in which industries are leaving the sections of the country with which they have long been identified, and building up centers elsewhere.—Literary Digest.

**T**HIS STATEMENT in an article relative to the textile industry is equally applicable to the paper and wood pulp industry, in which an industrial shift is taking place which is directly comparable with the movement among textile manufacturers. Such a business transition has been in progress in the paper and wood pulp industry for a number of years, and has reached a point where it is prophesied it will not be long until a large part of paper manufacturing may be shifted to the West.

In this field as in many others, one of the most vital factors is raw material in a constant and adequate supply. Pulp and paper mills without pulp wood in sufficient quantities would be like a man on a raft in mid-ocean. Many mills throughout this country will no doubt soon be facing this situation—it is a question of only a few years. What to do, where to go, how to re-establish themselves will then become serious problems, unless proper steps have been taken well in advance.

In Holyoke, Massachusetts, one of our most important eastern paper cities, the use of wood for paper was unheard of until 1875. Today nearly 80 per cent of the product there is made from wood pulp. This great change has taken place within a generation, and it is here to stay. Regardless of substitutes which have been used or which may be used because of a diminishing wood supply, wood will for a great period be the chief raw material in the paper industry, according to Federal Government reports.

Reforestation in the eastern states has not been highly successful and is still in experimental state. According to authorities, it is asserted that eastern mills have

no assurance of an adequate supply of pulp wood for more than five or ten years. The logical solution, then, is to go where raw materials are found in abundance. Many of the keenest men in the industry have realized this, and today those in the West are watching an industry grow into a colossal commercial figure.

The possibilities of pulp and paper manufacture in the Pacific Northwest, notably Oregon, Washington, British Columbia and Alaska, are unbounded. There are immense stands of timber suitable for these products throughout this territory. Reforestation is being provided for, and as the rate of growth in this climate is extremely rapid, a perpetual supply seems assured.

Most of the chemical substances necessary for the various processes are also found in abundance in many sections of the Pacific Northwest. Low freight rates by water make even eastern materials as cheap here as in many localities much closer to the source of supply. Large quantities of pure water suitable for manufacturing purposes are available in almost every locality, and the potential water power in the Northwest is considered practically unlimited. Nature has combined forces in producing conditions favorable to the rapid growth of the pulp and paper interests. The Federal Government is supporting and encouraging the establishment of the industry on a firm basis. Already the paper manufacturers have gained a strong foothold and are enlarging their field of operations.

The interests erecting or planning the erection of pulp and paper mills in that section are not asking, "Is this a wise step," but rather, "How soon can we begin operating."

## Paper Mill Engineer Expresses Optimistic Views

C. C. Hockley, widely known paper mill engineer, expresses definite views as to the pulp and paper manufacturing possibilities for the West. In an interview given a representative of this journal, he stated the prospects for a banner year in the erection of new mills.

"Of course, not all the mills that are reported meet with realization," Mr. Hockley said, "but a very encouraging situation is a certainty."

Mr. Hockley opened an office in the Northwestern Bank Building, Portland, Oregon, the latter part of 1925, feeling that after twenty years experience in operating and building mills, he has seen the wood disappear gradually from the east coast and has followed it into the Middle West and now feels the Northwest is the last and permanent paper manufacturing place in the United States.

Mr. Hockley was chief engineer for such people as the Union Bag and Paper Company and Laurentide Paper Company.

## E. M. Mills Buys Yacht

A note from San Francisco says: A fine new yacht has been added to the Bay fleet with the arrival of the 72-foot motor cruiser "Hoqua" from Seattle. E. M. Mills, member of the San Francisco Yacht Club and vice-president of the Zellerbach Paper Company, and president of the Washington Pulp & Paper Company, is the new owner of the "Hoqua", which was formerly the property of Albert Schubach of the Seattle Yacht Club.

## Bonnors Ferry, Thinks It Is Good Location For Pulp Mill

And now comes Bonners Ferry, Idaho, with its claim as a location for a paper mill. And perhaps it is. In the Kootenai Valley and Lincoln County, Montana, it is stated that there are many million cords of pulp wood to be had at reasonable prices. There is also an abundant supply of fine water.

# The Alpha and Omega *of* Paper Manufacturing in Alaska

---

**F**IRST and last, and at every step, in the utilization of the pulp timber of Alaska and the development and building up of a big paper manufacturing industry, the vital necessity and vitalizing energy is TRANSPORTATION. The first, and every succeeding, prospector, cruiser, surveyor, engineer, laborer, capitalist or his representative, required transportation and it has been supplied. The building and operation of paper mills in Alaska and the distribution of the product to the markets of the world require capital, machinery, supplies, labor, and TRANSPORTATION.

Would it be extravagant to name the three industrial graces as Capital, Labor and Transportation and to say that the greatest of these is Transportation?

For a third of a century the Alaska Steamship Company has been supplying Alaska transportation. From one steamer of 333 tons it has grown (with Alaska) to seventeen steamers of over fifty thousand tons. Its name means something. It is an ALASKA Steamship Company. It has contributed much to the development and upbuilding of Alaska. It is prepared to furnish whatever transportation or special service or equipment that may be required to build and operate and distribute the product of all of the paper mills that may ever be built in Alaska. On this ground it challenges all prospective and future builders and operators of paper mills in Alaska and solicits the opportunity to fulfill their transportation requirements.

## ALASKA STEAMSHIP COMPANY

JOHN H. BUNCH, Traffic Manager

Pier 2, Seattle, Washington



### Progress in British Columbia

The British Columbia Pulp and Paper Company Limited, which was organized the first of 1926, has experienced real progress in the first short year of its existence in extension of markets and the resultant enlargement of plants, warehouses and offices.

The company is operating one sulphite pulp plant at Woodfibre, near the head of Howe Sound, and another at Port Alice on Quatsino Sound near the northwest end of Vancouver Island. These plants are running steadily with an output of about 200 tons per day. Production at the Woodfibre plant has already been increased 15 tons per day, and plans are being made to increase the capacity of the Port Alice plant to the same extent early this year. At the latter plant, additions to buildings as well as machinery have been made to improve the quality of the product. It is hoped that this pulp will soon be known in the world's markets as being of the highest quality.

Trial shipments of Rayon pulp have been made, and it is expected that the new year will see an increase in the company's shipments of this class of material.

At the end of 1926, employment was provided for about 675 men, in connection with the two plants, and the payroll, including those engaged in the production of the purchased logs, totaled approximately \$1,250,000. Towing and water freight expenses were about \$500,000 and the purchase of supplies in British Columbia alone reached the same figure.

In connection with the plant at Woodfibre, a new social hall was opened in December. This hall is being used by all employees for dancing, and as a gymnasium and theatre.

The market situation is remaining satisfactory and the outlook for the new year is encouraging. A single shipment of 3000 tons by water was recently made to the Atlantic Coast. Plans for the company, headed by Lawrence Killam as president and managing director, include for the coming year further improvements to the plants which will increase the efficiency of operation and add to the welfare of the workers.

### Tannery—Brewery—Soft Drink Factory—Pulp Mill

In 1860 James Biles, the man who was captain of the wagon train that came into Washington over the Naches Pass in 1853 started a tannery at Tumwater. This place was the first settlement in Washington, by Americans, North of Vancouver. On his retirement the tannery was taken over by a son, Clark Biles, who operated it until his death. His widow sold the property in 1895 to Adolph Schmidt who built the Olympia Brewery there in 1896. Who doesn't remember the slogan, "It's the water."

When Washington voted dry in the fall of 1914, Mr. Schmidt turned the plant into a factory for the manufacture of soft drinks.

By 1925 the soft drink business became unsatisfactory and the cry for "more pulp" began to reach the West and now the digesters and stacks of a pulp mill rise where once leather for men's soles was produced, followed by a beverage to cheer and lastly by those to quench thirst alone.

### Box Board Trade Is Holding About Normal

The box board trade of the Pacific Coast, while not as brisk as in the corresponding month of last year, is not such as to give the paper box and carton manufacturers any concern. This is the gist of the information gathered from coast box board consumers the latter part of January.

Upon being asked to express his opinion as to business expectations for the current year, F. C. Stettler of the F. C. Stettler Manufacturing Company, Portland, Oregon, said: "I do not care to be quoted as to my prognostications for 1927 business; I leave that to those who are more expert and who have a wider range by which to gauge their predictions. But I can say this," Mr. Stettler added, "business has not started out as promising this year as it did in 1926. But then, here on the Coast we had a phenomenal year in 1926, and it is quite likely this year will be a normal one."

The F. C. Stettler Manufacturing Company is one of the largest consumers of box board in the West, with their trade extending the full length of the Coast and as far east as Denver. They also maintain a large branch factory in Spokane, Washington, in addition to the Portland plant. Both factories specialize in stiff and folding boxes.

### Havana Buys Paper in Northwest

When the S. S. Charles R. McCormick sailed for Havana, Cuba, the early part of January, it carried 400 tons of paper which were loaded at Powell River, B. C. According to officials of the McCormick Steamship Co., these shipments are expected to exceed 1,000 tons a month in a short time.

According to the officials of the Powell River Company the quality that is winning this new market is due to the chemical content of the water used in the manufacture.

### Reported That St. Paul & Tacoma Lumber Co. to Build Mill

A well founded report that the St. Paul & Tacoma Lumber Co. has decided to erect a 50-ton pulp mill is current in paper trade circles. So far as can be ascertained, this mill will utilize the waste hemlock and spruce mill ends, etc. The St. Paul and Tacoma Lumber Co. has one of the largest mills on the Pacific Coast and the inclusion of a pulp reduction plant is a most natural sequence to its policy of expansion.

### Bellingham Receives First Cargo of Sulphur

No, not what you think at all. Simply one of the first effects of the advent of a new industry. Many commodities are moved in new directions by every such occurrence. No industry can be judged as to value to a community by payroll alone. A great multiplicity of items of industry and commerce inevitably change course to touch at such new ports.

### Municipal Dock at Bellingham Enlarged

To care for ships carrying supplies for the San Juan Pulp Manufacturing Company at Bellingham, it has been necessary to dredge a slip 400 feet long. This slip requires a depth of 24 feet at low tide.



# L. A. DeGuere

Mill Architect & Engineer

Wisconsin Rapids, Wisconsin



## Pulp and Paper Mills

Ground Wood, Sulphite, Sulphate,  
Surveys, Estimates and Reports  
Water Power Development



### *Reference—*

A long list of successful plants  
in various parts U.S. and Canada

Over 25 years actual experience in  
designing and building of mills.

*Now building in the West*

### Zellerbach Interests Active in Washington and Alaska

The Zellerbach Paper Company is announcing several new developments in Washington and Alaska. The latest is that of a 150-ton pulp and paper mill at Grays Harbor.

The site will be the old National Lumber Company location, which adjoins the plant of the Eureka Mill. This announcement is made by Mr. J. C. Shaw, Grays Harbor representative of the Zellerbach interests and manager of the Eureka Mill.

The new company is to be known as the Grays Harbor Pulp Company. As far as practical the waste products of the Eureka Mill will be utilized as pulp stock. Surveys are now in progress and construction will follow as rapidly as possible.

The construction of the mill at Shelton, Washington, with a capacity of 110 tons daily of bleached sulphite which was announced by Mr. E. M. Mills, vice-president of the Zellerbach Paper Company and president of the Washington Pulp & Paper Company, a short time ago, is proceeding rapidly. The plant at Port Angeles, Washington, is to be increased to a total capacity of 275 tons daily of newsprint.

Concerning their Alaska projects, Mr. Mills stated that while they have filed on several water powers and have applied for certain timber areas, it will be some time before actual construction operations can be considered. The course that a paper mill project for Alaska has to pursue is a long and complicated one.

### Rayon Pulp Plant for British Columbia

The reorganized Canadian Rayon Pulp Company Limited of New Westminster, B. C., announced early in January plans for the construction of a rayon pulp mill on Poplar Island, in the Fraser River. The announcement stated that the purchase of the 28 acres comprising the island from the Dominion government for \$35,000 would be completed, and that the machinery had been ordered and would arrive during February.

The plant will be installed in two units, the first of which will turn out 50 tons of sulphite pulp daily for the manufacture of rayon silk. The second unit will be for the mechanical ground wood process, and will have a capacity of 20 tons of tissue and wrapping paper pulp a day. The Westminster Paper Company and the Sidney Roofing and Paper Company of Victoria will use this product.

The company, which is capitalized at \$2,825,000, is making an initial bond issue of \$750,000. It is headed by J. J. Herb, who is also president of the New Westminster Paper Company Limited, and the Pacific Coast Paper Mills of Bellingham, Washington.

Other directors are E. J. Riddell, New Westminster, manager of the Westminster Trust Company; Nelson S. Loughheed, New Westminster, president of the Abernethy-Loughheed Logging Company; Charles H. Lain, Vancouver, of the Lain Logging Company, and H. L. Edmonds, New Westminster, director and secretary.

### Zellerbach Official Active in Northwest

Mr. E. M. Mills, president of the Washington Pulp & Paper Company and vice-president of the Zellerbach Paper Company, was at the Olympic Hotel, in Seattle, the early part of January. Mr. Mills is extremely busy at this time with the expansion projects of the two companies in which he is interested.

### Mill of Colorado Pulp & Paper Company Sold

Denver papers announce the sale of the pulp mill of the Colorado Pulp & Paper Company, located just north of the city by Joseph Buchhalter, president and principal stockholder, to A. H. Dougal and associates.

The plant was sold to a group headed by Buchhalter at a receiver's sale in May, 1925, for \$370,000. The present assets of the company are stated to be \$750,000.

Dougall is vice-president of the Continental Paper Products Company of Denver. He was formerly general manager and large stockholder in the California Paper and Board Mills of Antioch, Calif.

The new board of directors which took office Friday following the sale consists of A. H. Dougall, president; W. T. Hogan, vice-president; Henry Bronstein, secretary; A. Bronstein, O. O. Pryor, Roy S. Dexter and Charles B. Myers, who headed the original company.

Dougall plans to produce specialties used largely in Denver. The mill is equipped to convert waste paper into various grades of cardboards used in making paper boxes and similar articles.

The paper mill was originally built by the Myers Pulp and Paper Company in 1923.

The mill now employs 60 men and has an annual payroll of \$120,000.

### Reforestation Projects in East

The reforestation programs of a number of the larger Northern New York pulp and paper companies indicate that the situation as to pulp wood is attracting increasing attention. A number of firms are planning to aid the State Conservation Commission, among them are the Racquette River Paper Company at Potsdam, the St. Regis Paper Company and Northern New York Utilities, Inc., at Watertown, and the Malone Light and Power Company. These firms have for some time been taking part in reforestation work, maintaining nurseries under the supervision of skilled foresters.

The St. Regis Paper Company and Northern New York Utilities, Inc., of Watertown, are carrying on the work on a gigantic scale and 1927 promises to surpass last year's records for tree planting in the nurseries maintained by these firms. John N. Carlisle, of the St. Regis Paper Company, and president of the Northern New York Utilities, is one of the leading factors in the reforestation program and he has already directed the planting of a large number of trees in nurseries along the Beaver, Black and Oswegatchie Rivers. The State Conservation Commission has announced that 20,000,000 seedlings have been called for from upstate firms during 1927.

### Full Blast at Powell River

Powell River (B. C.) paper mill is now operating full blast with a battery of six machines. The two new fourdrinier recently installed have been running without interruption since being put in and the total production is now 450 tons per day.

### Canadian Mill Resumes

Pacific Paper Mills, Ltd., Ocean Falls, B. C., has resumed operations after a shut down occasioned by the bursting of the fourdrinier, a machine of English make, injuring a number of employees. A 12-foot dryer has been installed, replacing that part of the machine destroyed by the explosion.

# International Appraisal Association



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306-329 Bartlett Building  
Dae C. Lantz, General Manager

**TACOMA OFFICE**  
716 Washington Building  
A. B. Ayerst, Manager

**PORTLAND OFFICE**  
716-717-718 Yeon Building  
Dayton E. Smith, State Manager



### How Seattle Fair Landed Big Mill for Northwest

How the Seattle fair of 1909 landed a fine big industry for the Northwest was recently related to the Daily World of Wenatchee by W. A. Brazeau, head of the Inland Empire Paper Company of Millwood. Said Mr. Brazeau:

"I had been connected with the paper mills in Wisconsin and had come West to recuperate my health. I wanted to come out and take in the Alaska-Yukon Pacific Exposition. As I neared Spokane on the train I picked up a Spokesman-Review and read the headline, 'A Million Dollar Paper Mill for Spokane.'

"I got off at Spokane and looked the situation over. The other plan for the construction of a paper mill failed and a few weeks later I asked the real estate men who had the project in charge to give me an option on the real estate and water power. I then took the matter up with my people in Wisconsin and in 1910 we had running the first paper mill in the Inland Empire.

"It is still the only paper mill between the Cascades and the Missouri river. We started out with an output of 15 tons a day. This afterwards increased to 65 tons a day. We are now turning out 110 tons a day and are shipping as far as Texas and Oklahoma. We specialize in roll newsprint.

"We have plans under way for the installation of another unit, and by 1928 we expect to be turning out 185 tons daily. We also plan on the installation of a hydro-electric plant to handle 15,000 horsepower."

During 1927, 30,000 tons of paper will be manufactured by Mr. Brazeau's firm. Eighty per cent of the output has been contracted for, the remaining 20 per cent being reserved for smaller consumers. Four thousand tons annually are being shipped to the Denver News, and half this amount to the Oklahoma Leader at Oklahoma City. Big shipments also go to Dallas, Houston and San Antonio, Texas.

### Unpurified Pulp Mill Waste Declared Menace to Oysters

Complaints that the discharge of unpurified chemical wastage from pulp mills into the waters of Puget Sound would result in the destruction of valuable oyster beds have been investigated by A. E. Stuhrt, head of the State Board of Health, and found plausible. Following his report, a conference was called by Charles R. Maybury, Director of Fisheries and Game, for January 21 at the Olympia Chamber of Commerce.

The investigations have been very comprehensive, taking in the entire Sound region. According to Director Maybury, the situation is serious in view of the several mills under construction or being planned on Puget Sound. State oyster beds as well as privately owned beds would be affected, it is claimed.

It is believed likely that legislation to require pulp and paper mills to purify acidulous wastage before discharging, will be sought.

### Oregon Cities Want More Mills

Editorials in the Journal of Salem, Oregon, and in the Democrat-Herald of Albany, Oregon, indicate that these two cities are in the market for pulp and paper mills. There is at present one mill operating in Salem, using but a small fraction of the waste from several large mills, and according to the Salem press, there is room for several more. Albany has no mills at this time, but is much interested in the establishment of such an enterprise.

### Salem Paper House Interest Sold

An interest in the Rodgers Paper Company of Salem, Oregon, has recently been purchased by the Blake, Moffitt and Towne wholesale paper house of Portland, formerly the Blake, McFall Company.

The Rodgers Paper Company was organized about 30 years ago, serving a trade of printing and wrapping paper in the Salem territory. There will be no change in the personnel of this firm, except that O. W. Mielke of Portland, president of the Blake, Moffitt and Company will become first vice-president. Capitalization of the Salem firm will be increased to permit the carrying of a larger stock.

### Mill Waste Utilization

A chipper for the preparation of mill waste for pulp stock is being installed at the Willamette Valley Lumber Company mill at Salem, Oregon. The product will be loaded into super size box cars, similar to hog fuel carriers and shipped to the Salem Pulp and Paper Company.

It is expected that the location of the chipper at the saw mill will enable them to utilize considerable waste that is now being left in the forest.

### Industries Grow Together

The Crescent Boxboard Mill of the Paraffine Companies at Port Angeles turned out fillers for 297,000,000 eggs in 1926, according to a published report. The egg industry in Washington for 1926 had a large growth which calls for additional fillers. To meet this need the mill has installed another egg filler machine.

### F. H. Godfrey Tours East and South

F. H. Godfrey, Seattle representative of the Healy-Ruff Company, agents for the Broughton Systems, is now in the East visiting many of the mills in which the Broughton System has been installed. His itinerary includes a tour of California on the return trip, arriving in Seattle again early in February.

### Far East Pulp and Paper Mills Planned

A recent dispatch from Moscow states that after over a year of negotiations, Japanese lumber interests represented by the Rorio, Ringio, Kumiay Corporation, have obtained from the Soviet government the largest timber concession yet granted Japan. The concession includes the right to exploit for six years nearly 3,000,000 acres of rich timberlands bordering on the Tartar Straits in the maritime provinces of the Far East. The company, which is capitalized at \$150,000,000, is planning to erect pulp and paper plants.

### Japan Orders From Northwest

A mill in Japan has contracted with the Occident Pulp and Paper Mills, Inc., whose plant is being completed on the waterfront at Edmonds, Washington, for the latter to furnish 400 tons of pulp a month during 1927. It is said that this firm will contract for additional tonnage when it is available. Among local contracts is that of a Bellingham paper mill to take 1,200 tons during this year from the new Occident mills.

# Announcement

**W**E are developing a full and complete line of machinery for the manufacture of pulp by all processes. Having a complete engineering force we respectfully request that you submit to us all your requirements for this class of machinery and problems in engineering which will receive our prompt attention.

Being located as we are in the cen-

ter of the pulp manufacturing industry of the West and equipped with one of the largest and most modern plants for the manufacture of machinery, we are admirably qualified to give service and build machinery of the very highest class for which SUMNER has always been noted.

Up to the present time we have completed or have under construction the following list of pulp machinery:

**51" Chipper**  
**30x12 Re-chipper**  
**Refuse Hogs**  
**Single Press Wet Machine**  
**Double Press Wet Machine**  
**Pulp Baler**  
**Vertical Agitators**  
**Horizontal Agitator**  
**Pulp Grinders**  
**Quick Opening Stock Valves**  
**Cast Iron Digestor Valves for Soda Process**  
**Herringbone Reduction Gear Drives**  
**Necessary Transmission Machinery—**  
**Conveyors and Conveyor Drives**  
**Steel Tanks**  
**Complete Cut-up and Chipping Plants**

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**VANCOUVER, B. C.**

**Canadian Sumner Iron Works**

### Bellingham Shows Marked Progress in 1926

Bellingham, Washington, young as a paper city, is making rapid strides well worthy of mention. The industry was started here in 1925 by the Pacific Coast Paper Mills, headed by J. J. Herb of the New Westminster Paper Mills. Already an addition to the plant is being constructed at a cost of \$175,000. This unit is a fireproof reinforced concrete building 50 by 250 feet and two stories high. When both units are operating, which is expected sometime during February, employment will be furnished to between 50 and 75 men. J. J. Herb, president of the organization, has established his home in Bellingham, and apparently intends to remain there.

The San Juan Pulp Manufacturing Company was preceded by the paper mill by only a few months, and began operating on October 6, 1926. It is shipping 250 tons a week to middle west and eastern mills, and will supply the Pacific Coast Paper Mills with pulp as soon as their new plant unit is complete. The pulp company occupies eight or ten buildings on Laurel street, and has a payroll of 85 persons.

The product is made from box lumber waste obtained from the Bloedel-Donovan Lumber Mills, and the Bellingham and Blaine factories of the Morrison Mill Company. The company gets its fuel for the boilers from waste sawdust and shavings blown from the Bloedel-Donovan box factory through a pipe line 2,300 feet long.

The incorporators of the pulp company are O. M. Green, Ossian Anderson, P. F. Knight and William Morrison. Its officers are Ossian Anderson, president; William Morrison, Bellingham, vice-president; O. M. Green, Olympia, secretary-treasurer.

In connection with the company's operations, the Bellingham port commission recently dredged a channel 400 feet long on the south side of Pine street so that steamships bringing sulphur for the pulp concern could dock there and discharge their cargo directly into cars. One shipment of 300 tons arrived the latter part of December from the Texas Sulphur Company of Galveston, Texas. Ships are expected to arrive here once every three months, bringing cargoes of sulphur.

Including the addition to the Pacific Coast Paper Mills, the expenditures of the pulp and paper interests in Bellingham during the last year have totaled nearly \$500,000.

### Anacortes Mill Makes Good

It was something of a joke with pulp manufacturers when the Fidalgo Pulp Manufacturing Company at Anacortes began making pulp in their 20-ton plant. At first they could not get an offer for their product. The story is told that Mr. Everitt shipped two cars to the middle west on speculation. When he received an offer for it he jumped at it and signed up for a year only to learn the next day that he had sold at \$5 a ton under the New York market. Now the laugh may be on the other side. The demand for Fidalgo pulp is such that the capacity of the plant is to be doubled as rapidly as the work can be carried on.

### Pomona Plant Plans Another Unit

The California Fruit Wrapping Mills of Pomona, California, after only a scant two months of actual production, are planning the installation of a twin unit

to meet an increased demand. The new concern is a part of Fernstrom and Company, one of the largest paper distributors in Sweden, with main offices in New Orleans and San Francisco and branch offices in five other cities in the United States.

The complete output of the plant for the next five years has been sold to the Mutual Orange Distributors of Redlands, the Redlands Heights Fruit Exchange and the San Antonio Fruit Exchange of Pomona. Tissue paper wrappers for citrus fruits is the only product considered at the present time, there being sufficient demand to justify all the expansion possible for some time to come. According to Erik Fernstrom, executive director of the mill, the exchange officials throughout the citrus belt are realizing the importance of the Pomona establishment, and are giving it their support.

The plans for the plant were drawn up by Albert Ortendahl, an engineer of experience in Sweden and other European countries. Provisions were made to allow almost any expansion which might be required. Mr. Ortendahl, as chief engineer, is supervising production. The pulp used in manufacture is all imported from Sweden. The cost of the plant, including machinery, was approximately \$450,000.

According to recent reports, a tissue machine similar to the one in operation at Pomona has been ordered for the plant of Fernstrom and Company in Sweden.

### Crown-Willamette Continues Reforestation Program

The extensive reforestation program of the Crown-Willamette Paper Company in Clatsop County will be carried on again this year on a larger scale than ever before. Approximately a quarter of a million young trees will be set this winter, it is said.

The trees will be planted in the valleys of the Necanicum River and Young's River, where the company has large holdings of cut-over land.

All the sets will be of Sitka spruce, the young trees being nursery grown in the company's conifer nursery at West Linn, Oregon.

### Mill for Medford, Oregon, Likely

A recent press statement from Medford, Oregon, says that the establishment of a large pulp and paper mill in this city is a probability in the near future.

A late survey by the United States Forest Service shows that southern Oregon is rich in pulp woods. Forest Assistant Lee P. Brown of the local office recently reported that the Federal forest laboratory in Madison, Wisconsin, had tested southern Oregon woods, and found them rich in pulp content. There are five types of trees included in this report: Alpine white, Shasta fir, Western hemlock, Lodgepole pine and Engleman spruce.

The first named weigh from 21 to 22 pounds per cubic foot and produce one ton of pulp for every hundred cubic feet of solid rossed wood. Western hemlock, weighing 24 pounds per cubic foot, yields 2160 pounds of pulp per hundred; Lodgepole pine, weighing 23.3 pounds produces 1900 pounds of pulp, while Engleman spruce with a weight of 21 pounds produces 1950 pounds of pulp.

The federal laboratory where the tests were made is operated in conjunction with the University of Wisconsin. The survey also shows that the location of the pulp woods is such that Medford will no doubt be the logical center of pulp mill operations.



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